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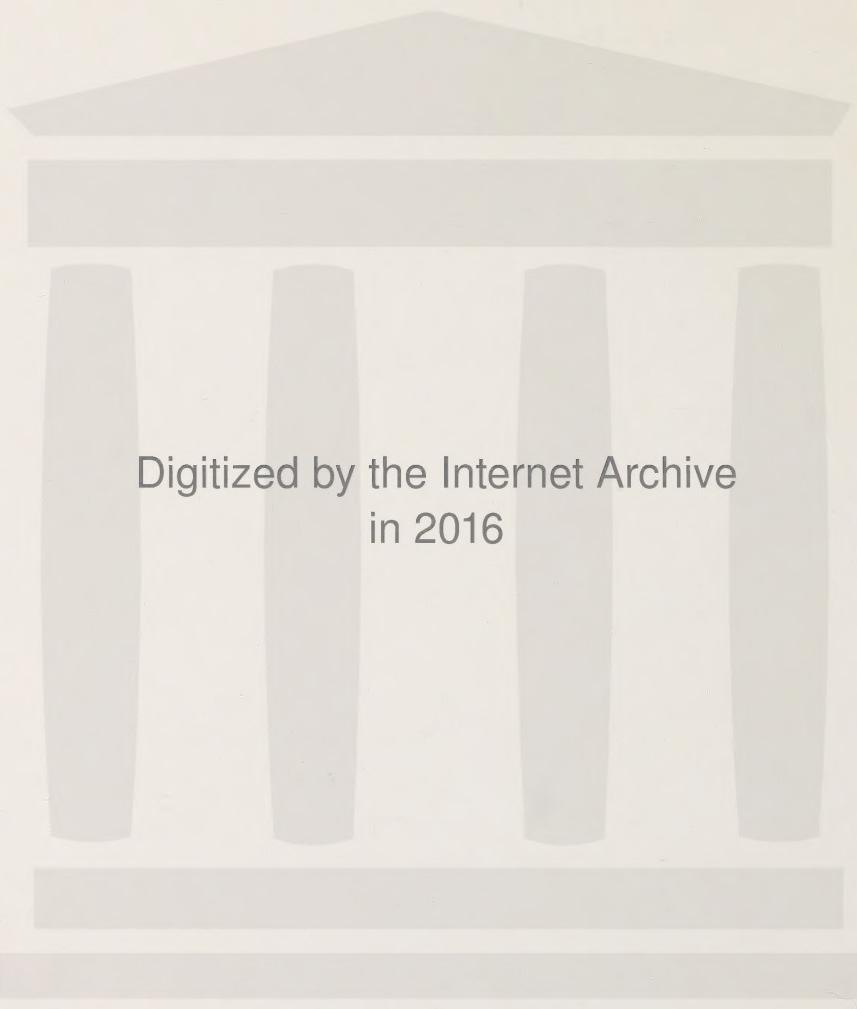
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## SPICE AND ESSENTIAL OILS MARKETING STUDY

### OPPORTUNITIES FOR ALBERTA

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Alberta Grain Commission  
June, 1989



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#### ACKNOWLEDGEMENTS

A number of people have contributed time and experience to help in this project. The Agri-Food Development Branch of Alberta Agriculture initiated the project, helped develop terms of reference and provided advice and information throughout. Dr. Refe Gaudiel of the Alberta Special Crops and Horticultural Research Centre provided tremendous input in terms of suggestions for spice crops to study, production information, and information needs for Alberta. The Special Crops Steering Committee helped with the terms of reference and provided input at a preliminary presentation of the study results.

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The encouragement and enthusiasm shown by those involved in the spice industry, within Alberta and elsewhere, was very much appreciated. May that enthusiasm continue to grow towards the development of a viable, growing spice industry in Alberta and Canada.



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## INTRODUCTION

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### PROJECT INITIATION

This project was developed from a request by the Alberta Agriculture Special Crops Action Committee to collect and co-ordinate information on herbs, spices and essential oils. Production research was being done at the Brooks Horticulture and Special Crops Research Centre and some attempts had been made to look at market potential, however, time and funds were limited. The Alberta Grain Commission has a special interest in crop diversification and in spices and enthusiastically adopted the project starting in August of 1988. A terms of reference was developed that originally included production information. This section was excluded from study since marketing information was to be the primary focus.

### PROJECT PURPOSE

The purpose of the project was to determine the market potential for Alberta production of selected spice crops. Recognition of the need for crop diversification to reduce the agriculture industry's reliance on traditional crops has been the driving factor in research into alternative crops. Research on spices has been ongoing in Alberta and in some other provinces and much agronomic data have been collected. More specific, market-oriented information is needed to target crops of greatest value and potential for Alberta production.

To accomplish the goal of targeting specific crops, market information is needed. Information needs for this project were identified as follows:

- ° structure and function of the Canadian, U.S. and world spice industries
- ° industry requirements in terms of prices and quality of spices
- ° domestic and international supply and demand of spices

With this information Alberta will be better able to diversify the crop mix, replace some imported spices with domestic supplies and possibly become a world supplier of some spices as well. Canada has a reputation for quality in a variety of products. With that reputation and an indepth knowledge of production and marketing of selected spices, the Canadian spice industry could develop a significant position in the world. Lessons taught by the European Community, a major source of spices, in self-sufficiency and aggressive marketing to Canada's advantage in crop diversification efforts would be well-used.

## REPORT STRUCTURE

The original goals of the project in terms of information needs have been accomplished. Sources of information were explored, initial contact with members of the Canadian and U.S. spice industries was made, and data have been compiled into this report.

The report fairly closely follows the original terms of reference in terms of content and structure. Data collection methods and data sources are presented in the first section. An industry profile that describes the Canadian and American spice industries as well as current work being carried out in Canada, and industry trends are presented in the next section. Technical aspects are discussed including U.S. and Canadian standards, processing operations, buyer requirements and institutional concerns. Supply and demand data are presented in the next section that includes production data where available, imports, consumption and prices. The next section provides individual herb and spice profiles for the list of spices targeted for study. Profiles include species descriptions, industry requirements, common sources and potential for Alberta production. In the final section opportunities for Alberta are discussed that incorporate industry needs and comments on the potential for Alberta as a producer of spices. Further work areas are identified.

## DATA COLLECTION

### SURVEYS

Two surveys were developed and mailed to members of the spice and food processing industries. A short, general survey was mailed to 150 food processors including representatives of the baking, meat processing, beverage, dairy, snack foods and specialty food industries. A longer survey was mailed to 23 millers and brokers directly involved with buying, milling and blending spices. A list of spices with potential for Alberta production was included in the survey and respondents were asked to answer questions based on the list.

Twenty-six of the short surveys were returned. Respondents provided information regarding quantities of spices used, sources of supply, products in which spices are used, and a ranking of characteristics important to sourcing supplies. Seven of the detailed surveys were returned. Information provided included quantities bought, sources, ranking of important characteristics, processing operations, customer information, prices and company data.

The surveys provided useful data from a number of sources on how and where spices are used, volume of the business and industry requirements. Results are reported throughout the report.

## INTERVIEWS

A number of personal and telephone interviews were conducted with government, industry and research representatives. A list of contacts is provided in the appendix. Various government agencies were contacted for information on import regulations, labelling requirements, quality standards and other regulatory issues. The University of Alberta, the Alberta Research Council and the Food Research Centre in Ottawa provided information on research activities in spices. The Canadian Spice Association provided a list of contacts in the industry and insights into the spice industry. A number of spice millers and brokers were interviewed in person in Edmonton, Toronto, Belleville and Montreal. These interviews were invaluable in providing marketing and industry structure information, pricing mechanisms and opinions on the trade and Alberta's potential to be part of the trade. The American Spice Trade Association provided samples of their standard contracts used commonly by Canadian brokers and millers. They also commented on the U.S. industry and potential for Alberta and Canada as growers and suppliers of spices.

Interview results are reported as appropriate throughout the body of the report. Nearly all of the individuals contacted by phone or in person were interested in Alberta's activities in this area and were more than willing to help with information and offers to test samples of our products to compare with industry standards. These contacts will be invaluable in future Alberta activities in the spice area.

### DATA SOURCES

Price and import data for Canada are difficult to find. The Canadian Spice Association is not large enough or funded well enough to collect data. Publications by Statistics Canada have, in the past, grouped spices into a single category with the exception of mustard and several tropical spices. Recent changes to their system of reporting, brought about by attempts to harmonize reporting procedures with the U.S., have allowed import analyses of individual spices to be performed. Import figures for some spices were recently provided by province and for Canada by the Market Intelligence Division of Industry, Science and Technology Canada. Import, export and price data are reported by the U.S.D.A. Production levels for spices are much higher in the U.S. than in Canada, however, the U.S.D.A. does not collect production data. Individual states likely have their own information on state production of some spice crops. Supply and demand figures for Canada are, to a large degree, inferred from available U.S. data.

The Alberta Special Crops and Horticultural Research Centre has been researching production of selected herbs and spices for a number of years. Conversations with Dr. Refe Gaudiel at the Centre resulted in the development of a list of spices with potential for Alberta production that was used in the surveys and interviews as a base for questions.

McCormick Ingredients, the largest spice miller in the world, provided a folder containing product data for a number of individual spices, some of which Alberta is considering for production. The product sheets provide valuable data regarding forms and common usage, common sources, quality requirements, U.S. imports and per capita consumption, new crop availability, and other useful information. Product specifications are McCormicks but the company is the largest in the world and wide application of those specifications would likely not be unreasonable.

A weekly paper titled "The Chemical Marketing Reporter" provides up-to-date data on New York spot market prices, imports and trends for use of spices and essential oils and is a valuable source of data. The Alberta Agriculture library has recently subscribed to the publication.

The American Spice Trade Association has published a great deal of information on the spice industry and on individual spices. These publications were well used as data sources for this report.

A collection of articles, books and pamphlets, including ASTA publications, have been collected by Alberta Agriculture staff and these provide tremendous amounts of information on spices as well. This literature collection will be sorted and catalogued for future reference.

## INDUSTRY PROFILE

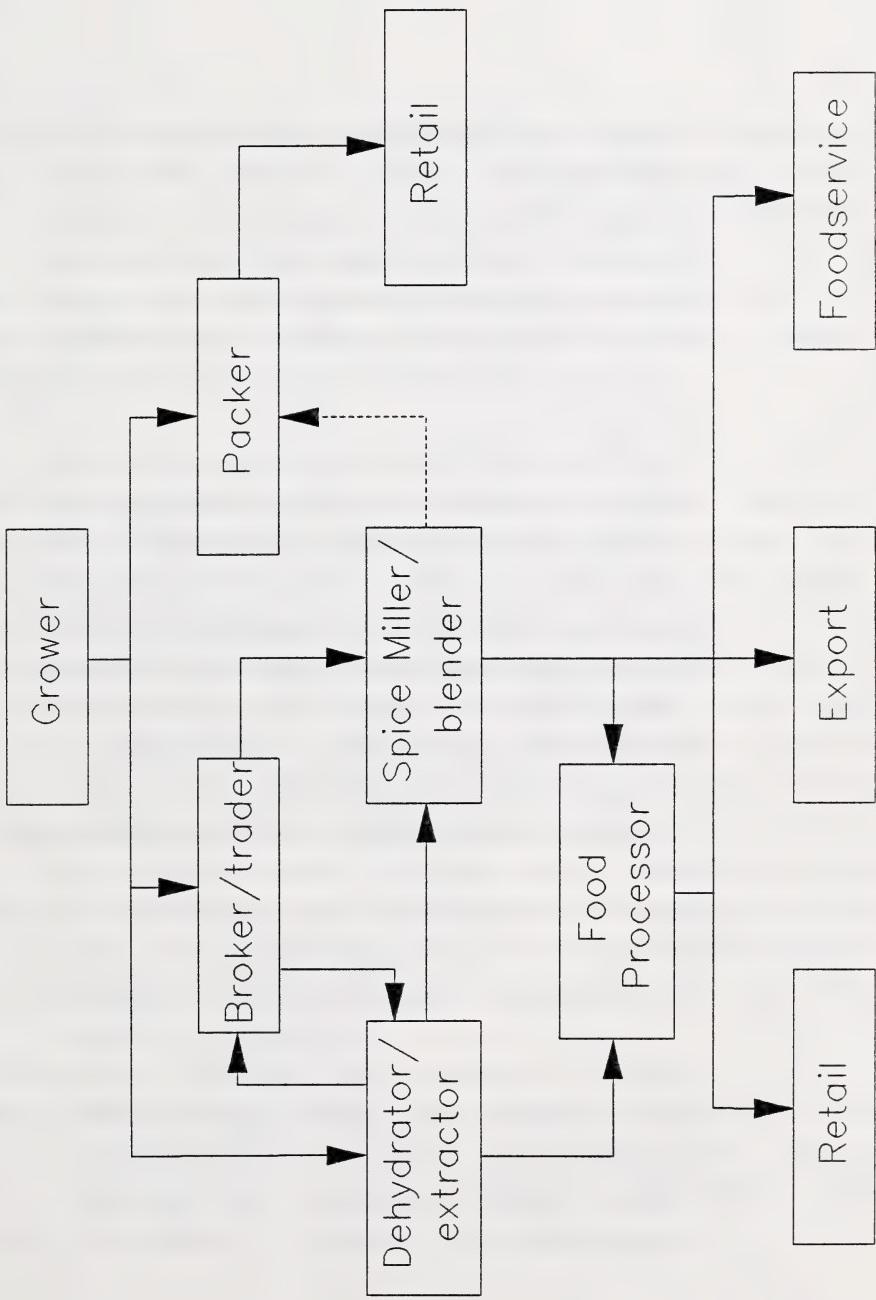
### CANADIAN INDUSTRY

The Canadian spice industry is very traditional; everyone has a fairly distinct function and stays within that role. Figure 1 shows a flow chart of distribution channels for spices in Canada and the various groups within the system. There are few spice growers at this time in Canada. Some Ontario producers have grown and sold caraway and coriander to the trade as have Manitoba and Alberta growers. Commercial scale production of most spices in Canada with the exception of mustard has been intermittent.

Most spices are grown in Europe, the U.S., India, and Africa depending on the spice. Grower sophistication varies greatly. Oregano grows wild in southern Mediterranean countries. Locals harvest oregano leaves by hand and sell to local buyers or processors who collect supplies from a number of small regions and gather the supplies at central markets. Production costs are extremely low. Conversely, California grows large supplies of a number of spices and the growing, harvesting and processing operations are highly mechanized. In Canada, brokers buy supplies of spices from agents in source countries who have collected local supplies. Canadian agents would include companies such as Northern Sales and Demeter Agro who would buy supplies from growers, clean and sell to Eastern brokers or directly to millers. Agents in countries of origin dry, clean, and export spices. There is an increasing trend towards value-added processing in country of origin; that is, more cleaning and grinding of supplies before they are exported.

FIGURE 1

## DISTRIBUTION CHANNELS FOR HERBS AND SPICES



Brokers deal with agents in the country of origin with whom they negotiate price. Brokers don't usually hold large supplies of spices - inventory is commonly held in source countries - although most have some inventory in storage in Toronto or Montreal. Some brokers use the U.S. spot market to fill orders for which they have no immediate inventory. The spot market is expensive and brokers do not generally like to rely on it.

Within the brokerage business, some distinction can be made. Most brokers take possession of spices and hold some inventory until buyers are found. A few sell strictly on commission and never take possession of supplies. These brokers work on lower margins and higher volumes than the others to make their profits. They can offer very competitive prices to customers who are very price conscious. Dealers buy spices strictly for resale; there are few in Canada and many more in the U.S. The distinction between dealers and commission brokers is unclear.

Growers of fresh herbs and spices may sell directly to a packer for retail sales. The fresh market is limited in Canada although there is some growth potential in that market.

Brokers' customers are commonly spice millers/blenders. Occasionally millers will buy directly from growers, however, Canadian millers expressed their reluctance to do so due to quality control requirements and logistical difficulties of negotiating with a number of growers for their supplies.

In the country of origin growers may sell to dehydrators or extractors who then export their products to brokers in Canada. Brokers may sell to dehydrators or extractors in Canada, buy the processed product back and resell to millers. There are no dehydration facilities in Canada and only a single extractor (Quest International) currently operates in Ontario.

There are several large spice houses in Canada who process raw or ground spice. The four largest are Stange (owned by U.S. based McCormick's, the largest spice company in the world ), UFL, Griffiths, and Foodpro. As well there are a number of smaller spice companies. Spice houses buy ground or raw dried spice from brokers and further process and blend the spices. A wide variety of blends are made; some using customer specifications and others using company recipes. Spice house products are sold to the meat and baking industries, condiment producers, canners, snack food producers, and other food processors who require flavoring agents. Millers may also sell to specialty packers who market gourmet spice blends for retail sale. The four largest spice houses tend to be industrial or wholesale producers of spice products and do not sell directly into the retail market.

Food processors package spice blends or use blends for further processed food products such as soups and sauces. They sell their products to retail, food service and export markets.

There may be some more direct channels of distribution than are indicated in the flow diagram, however, most of the trade tends to operate as shown.

CANADIAN SPICE ASSOCIATION

The CSA is made up of importers or brokers, millers and retailers involved in the Canadian spice trade. The purpose of the CSA is advance the welfare of the Canadian spice trade and to promote fellowship and goodwill among members. There are about 50 members who meet to discuss trade issues and trends. The CSA is not very active with neither funds nor personnel available for greater levels of activity. Some lobbying of Canadian government officials was carried out after the Chernobyl accident to allow spice supplies with higher levels of radiation into the country since supplies were tight and no risk to consumers was foreseen. The CSA has not taken a strong stand on either irradiation or ethylene oxide use; both of which are currently allowed for sterilization of spices. Mark Crawford of K.I. Litster is the current president and Wilmer Deforest of Griffiths is the secretary. A 1988 CSA membership list was provided to Alberta Agriculture for this study and a copy is included in the appendix.

### U.S. INDUSTRY

The American spice trade is considerably larger than the Canadian trade. An ingredients guide in the periodical, Food Processing, lists 96 companies that produce spices and seasonings in one or more forms. Three main groups are involved in the trade. Importers have contacts in source countries and import spices to sell to brokers or to manufacturers (millers). Brokers buy from importers or import directly and resell products to manufacturers. Manufacturers usually buy from brokers although some import directly for their own use.

The U.S. trade is described by Thomas Burns of the American Spice Trade Association as being razor sharp with a great deal of competition and much less co-operation than is found in the Canadian trade. There is more overlapping of roles as integration is more widespread in U.S. companies. For example, the U.S. is the world's largest producer of onion and garlic. The industry is centred in California where growers, dehydrators and packagers are all part of the same company. California can produce onion and garlic (mostly dried) in almost any size and quality desired. The U.S. also grows enormous quantities of other herbs. There are only about 4 commercial growers of herbs and spices in the U.S. and many more small organic farmers and herbalists who grow some spices. The growing season in the U.S. and California in particular is very long and 3-4 cuttings of an herb could be taken where 2 would be the maximum cut in most parts of Canada. In general, favorable climatic conditions and a highly value-added industry make the U.S. a dominant source of a number of the same spices that have potential for growth in Alberta.

### AMERICAN SPICE TRADE ASSOCIATION

ASTA is a trade organization set up to protect and promote the interests of the spice industry in the U.S. Formed in 1907 by 57 firms ASTA now has a membership of over 350 firms and organizations representing brokers, dealers, manufacturers, food processors, suppliers to the spice trade and non-resident members. The Canadian Spice Association is a member of ASTA.

There are 5 permanent staff in the ASTA office in Englewood, New Jersey. ASTA provides standard contracts for use by the trade and collects statistical data, mainly import statistics. The Association has tried to collect production data for spices in the U.S. with little success. The research committee of ASTA was responsible for developing the ASTA Analytical Methods Manual that provides uniform and accurate methods for analysing spices. The committee is also involved with research in microbiology of spices and anticipating and targeting future trends and needs in the industry.

ASTA contracts and rules associated with them are recognized and used throughout the world. The CSA uses ASTA contracts as guidelines rather than enforced standards. Copies of the contracts are included in the appendix and indicate the nature of the various transactions in the trade. ASTA also provides consumer and industry information on spices and liaises with government on issues affecting the trade.

### CANADIAN ACTIVITY

Market research regarding spices in Canada has been limited. The lack of production and consumption data has made it difficult to determine the potential for Canadian production of specific herbs and spices. Nevertheless, there has been some commercial production of caraway and coriander and experimental production of other spices. Alberta has been involved with production research on spices for some time and recognized the need for market information so that research could be targeted to those crops with the greatest potential. Manitoba and Ontario are also interested in spice production and have done market studies to determine the potential for provincial production of selected spices.

There is a recognized need for breeding work to develop varieties of spices suitable for Alberta. However, with research funding for traditional crop breeding becoming tighter there are no funds available for breeding work in spice crops.

Processing technology in the area of extraction is being rapidly developed in Alberta by a firm doing supercritical extraction of spice oleoresins. Commercial facilities are being planned. With only one extractor in Canada and with increasing trends towards stricter controls on solvent residues from extraction the new process looks promising for the spice trade. Extraction technology is discussed in the technical section of the report.

## INDUSTRY TRENDS

As noted previously, there is an increasing trend towards value-added processing of spices at the source with ground spice being imported rather than whole spice. Spice broker and miller demands and expectations of more processed spices at source can give an indication of how Alberta should approach marketing of spices. Increasingly strict standards for cleanliness and quality in the industry also point towards an increasing demand for a premium product that can be marketed as is, or further processed without need for cleaning. Use of essential oils and oleoresins is increasing dramatically and these extracted spices may become the dominant forms of use in the food industry in the near future.

## TECHNICAL ASPECTS

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### SPICE FORMS

Spices are derived from various parts of plants. Roots (ginger, horseradish), bark (cinnamon), seeds (caraway, coriander), flowers (chamomile), and leaves (dill, tarragon) are used as spices. The form in which spices are used varies widely. Common forms of use for individual spices are noted in the spice profiles. Categories of spices are described as follows:

- ° Whole Spice: Caraway seed, mustard seed, and poppy seed are all used whole to provide visual appeal as well as flavor. Flavor components are not readily released by whole spices which limits their flavoring capabilities but extends the storage life of the spice.
- ° Ground Spice: Spices can be ground to any specification from coarse pieces to fine powder. Ground spice can be more uniformly mixed in food preparations however grinding significantly reduces the shelf life of spices. Oxidation and volatilization of essential oils leads to flavor losses. Cryomilling of spices involving milling at very low temperatures reduces flavor loss and prolongs the shelf life of the spice.

◦ Spice Extractives: Essential oils are the volatile components of spices that are responsible for flavor and aroma. They are derived by steam distillation for the most part and also by cold pressed and vacuum distillation methods. Advantages of essential oils are their uniformity in quality and lack of color when used in food preparations. Their flavor profile is incomplete, however, as they lack non-volatile components of the spice.

Oleoresins are commonly extracted from spices using solvents and provide a more complete flavor profile than essential oils. They consist of essential oils and resins as well as components that provide the heat in some spices such as pepper. Oleoresins are commonly used in the processed meat industry and in other types of prepared foods that require a full range of flavor components from a spice.

Oleoresins can be specifically formulated to customer needs and are often mixed with essential oils to provide the desired flavor profile. Liquid solubles are blends of oleoresins and/or essential oils and other edible gums and are available in oil or water soluble forms. Dry solubles are oleoresins that have been plated onto salt or sugar carriers and are used to flavor processed meats and cake mixes. Encapsulated spices are made of oleoresin particles surrounded by starch and are used as dry powders soluble in water.

Other forms of extracted spices include essences, extracted from ground spices with alcohol; emulsions; essential oils and oleoresins encapsulated with water-resistant coatings to render them heat resistant; and fat-encapsulated essential oils and oleoresins that are used in high fat food preparations.

#### PROCESSING OPERATIONS

Although there is a fresh herb market, it is small compared with the entire spice trade. Spices are most commonly dried or dehydrated and then further processed. Drying in tropical countries is done on racks or on the ground outdoors. Mechanical dryers vary in capacity and complexity and are used at the source to improve storage and transportation operations. Dehydrators are used for onion and garlic and for horseradish. There are no dehydration facilities in Canada. California has many dehydrators for the onion and garlic and vegetable industries.

Cleaning is carried out by millers in Canada and the U.S. when the imported product is not adequately cleaned at source. Spice grown in Canada and the U.S. would be cleaned by agents who buy the spice such as Demeter Agro and Northern Sales. Cleaning involves removal of weed seeds, insects and other macroscopic material. Commercial seed cleaners are used by spice houses if imported products cannot be cleaned in house. ASTA has a publication titled "Cleaning and Reconditioning of Spices, Seeds and Herbs" that provides useful technical information for spice growers and processors.

Sterilization is required for most spices to destroy bacteria and insects common in spices. Standard industry practise involves the use of ethylene oxide gas. This cold sterilization process is frequently used for low moisture ingredients such as spices that will be used in high moisture food products, that is, processed foods or home and restaurant cooking. Sterilization lessens the level of bacterial contamination that would need to be controlled for high temperature sterilization in processing or cooking. Griffiths has a patented process for sterilization of spices with ethylene oxide. A number of companies indicated a trend towards stricter regulations over cleanliness in spices. As well, customer specifications regarding cleanliness are becoming tighter. At the same time there is growing regulatory pressure to ban the use of ethylene oxide in spice sterilization since the gas is toxic and poses a risk to workers. Ethylene dibromide and methyl bromide are fumigation chemicals that are still used but are suspected carcinogens. Banning of ethylene oxide gas for sterilization would be a problem for the spice industry, however, there is no alternative product currently being promoted.

Food irradiation is a treatment process that has been around since the 1960's. Irradiation is commonly used to sterilize medical equipment and is used to a lesser extent for food to prevent spoilage and to decontaminate spices for example. In the U.S. 3-4 percent of all spices consumed domestically are irradiated. In Canada, irradiation of spices is allowed by law, however, irradiation is not currently performed on any food. The technology is slow in adoption mainly due to public perception that radioactive residues are left in food and could harm consumers. Irradiation will be discussed in more detail later in this section.

Grinding of spices is commonly done by millers in Canada although as noted previously there is an increasing trend towards grinding in the country of origin. For spices with high oil contents, cryogenic grinding is done; that is, the spice is frozen and then ground to avoid problems with the spice sticking to machinery, and to minimize flavor loss. Grinding can be done to customer specifications ranging from cracked to pulverized. Standard mesh sizes are used to indicate particle sizes.

Extraction of essential oils and oleoresins can be accomplished by various means. Essential oils are extracted by steam distillation and the process is more or less standardized. Extraction of oleoresins is a more complicated process. Currently, extraction is done using organic solvents from which the oleoresin is then separated. Methylene chloride is a common solvent that is used by Quest, the only company in

Canada currently extracting essential oils and oleoresins. There are problems with using organic solvents in that residues are left in the product. Regulations on allowable residue levels are becoming more stringent. According to Quest, ethylene dichloride was banned as a solvent a few years ago and the EC is attempting to ban hexane which is also widely used.

A relatively new extraction process called supercritical extraction uses carbon dioxide as a solvent. Under the extremely high pressures reached in the process, carbon dioxide becomes a liquid that can extract essential oils and oleoresins from spices and other plant products. No residues are left in the product and the process can be finely tuned to extract a number of fractions from the original product. The process is currently being developed in Alberta by Norac Technologies who are developing commercial processing capabilities.

Further processing of essential oils and oleoresins include plating the liquid product into dextrose or salt to improve flowability and even mixing of flavor ingredients. Oils are also encapsulated in gelatin for improved mixing in processed foods.

## FOOD IRRADIATION

Further comment is required on irradiation of spices. The Canadian Irradiation Centre in Laval, Quebec has a mandate to develop, demonstrate, and promote Canada's radiation processing technology and diverse applications. The centre is a co-operative venture between Atomic Energy of Canada, Radiochemical Company (AECL-fRCC) and the Universite du Quebec, Institut Armand - Frappier (IAF), Centre for Applied Research in Food Science (RESALA). AECL sells about 2 food irradiators per year to countries around the world. In Canada there are 2 food irradiators as well as the CIC facility who offer contract irradiation services. There are 30 irradiation facilities in North America who do mostly medical supplies and cosmetics and a small amount of food products including spices. According to staff at the centre, a company would need a minimum of 3,000 tonnes of food product a year to make an in-house irradiation feasible. The largest spice houses in Canada are close to that volume of product. Costs of irradiation amount to about 6¢/lb.; treatment with ethylene oxide is more expensive. Transportation costs to a central irradiator could be prohibitive, however, and in-house irradiators for most companies are unfeasible.

The spice millers interviewed indicated great reluctance to use irradiation for two reasons. Irradiation is considered expensive and companies are reluctant to invest the capital required. More importantly, companies are worried about their corporate image. Irradiation has been perceived by the public as harmful and no company wants to be the target of consumer boycott campaigns. Companies are caught in a double bind.

If they promote an irradiated product on the basis that their products have no organic solvent residues, they must then admit that they used to use organic solvents also considered harmful by the public. Acceptance of food irradiation in Canada will be slow although with regulatory pressure to ban more and more chemicals the process may gain acceptance in the near future.

#### REGULATORY ASPECTS

According to the Health Protection Branch of Health and Welfare Canada, there are no regulations requiring the use of sterilization agents such as ethylene oxide for spices. The department does perform spot checks on imported spices and they have guidelines for levels of toxic substances (e.g. salmonella in black pepper that has been problem). Most spice importers treat the spices with ethylene oxide which is not allowed to exceed 1500 ppm, an acceptable sterilization level. The Food and Drug Act and accompanying regulations control spice use. There are general provisions in the act regarding no harmful or poisonous substances such as pesticide residues and salmonella. The department allows irradiation of spices, without toxicological tests, up to 10 kilograys. No food sold in Canada is irradiated in Canada. Some spices and other foods imported into Canada have been irradiated in source countries. These foods are legal; barriers to irradiation involve customer acceptance, not regulations.

Consumer and Corporate Affairs is responsible for regulating packaging and labelling. The Weights and Measures Act specifies labelling requirements including package weights contents, packaging date and other relevant information. There are different requirements for consumer sized packages than for wholesale units sold to packers or institutions. The Seeds Act regulates the sale of selected spice seeds identified in Table XX of the Act. Minimum percent germination and maximum allowable weed seed limits for a variety of vegetable and spice seeds sold for commercial production rather than as ingredients are specified in the Act. (Acts are available for examination in the spice files collected for this project.)

Quality standards are set by the industry. The American Spice Trade Association has a set of standards that refer to macroscopic matter in spices (insects, mold, etc.). Standards do not cover quality characteristics in terms of oil content or composition. There are no regulations requiring a product sold as caraway seed, for example, to have a specific oil content or composition. Customers specify their own requirements. ASTA has a publication that describes standardized analytical methods that are used by the industry to analyse products for oil composition and other characteristics. The Canadian industry uses ASTA standards to a large extent.

As noted previously, regulations are becoming more strict in terms of residues and chemical use on foods in general and thus in spices. Trends towards greater restrictions on chemicals may be expected to continue in the future.

Imports of spices are dutyable depending on the form in which the spice is imported. Raw seed is not dutyable; ground packaged product faces a 20-25 percent duty. Quest indicated that there is a 6 percent U.S. duty on oleoresins exported to the U.S. although third world countries can export oleoresins to the U.S. duty-free. Onion and garlic imported from the U.S. has a Canadian import duty of 10 percent. There is now a Canadian import duty on essential oils although not currently on oleoresins which may face duties in the future. Poppy seed for the food industry is produced from the same species from which opium is derived. Production of poppies is thus strictly regulated with licences and crop security required by Health and Welfare, Canada.

#### BUYER REQUIREMENTS

Customers can be very specific regarding their spice requirements. Although spices come from a variety of sources, some customers specify their desired source in a sale; for example Dutch caraway as opposed to Canadian. Minimum oil contents may also be specified. There is an increasing trend towards use of oleoresins rather than dried ground spice. The meat processing industry uses oleoresins and essential oils almost exclusively except where some visual evidence of spice particle is necessary. For extractors such as Quest, volatile oil content is the most important factor. Appearance and cleanliness are much less vital to an extractor therefore, they can buy screenings and lower, cheaper grades of spices not suitable for a miller who might need clean whole spice. Pure

oleoresins are not always useable in that form since they may be too strong or too viscous. Oleoresins may be diluted with vegetable oils and weak oleoresins may be strengthened with essential oils depending on customer requirements. A few customers are very price conscious and are somewhat less concerned with top quality product. Most customers demand a top quality product and are sometimes willing to pay premium prices for the product.

According to the spice survey results, quality is the most important characteristic buyers look for in supplies. Security of supplies was important as was price. Customer loyalty ranked low in priority. Industry opinion was unanimous regarding the need for clean spices including macroscopic and microscopic cleanliness. Cleaning operations are costly and time consuming and there appears to be some indication that customers will demand and pay for clean product, something some countries are not always willing to provide. A steady North American supply of clean whole or ground seed would be ideal from the Canadian industry's point of view.

## SUPPLY AND DEMAND

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### PRODUCTION

Spice production data for Canada and the U.S. are difficult to locate. Neither the U.S.D.A. nor Statistics Canada regularly collect data on individual spices. Some states may have production data, however, these sources were not contacted individually. Thomas Burns of the American Spice Trade Association suggested that about 1/3 of the total U.S. consumption of spices is grown in the U.S. That figure is general and would vary greatly depending on the spice, however, no other production estimates were found. Mr. Burns guessed that 5-6 million lbs. of herbs are grown annually in the U.S., mostly in California. The majority of U.S. herbs are grown by 4 commercial growers. As well, there are numerous smaller herb growers. Food and Agriculture Organization statistics were searched for world production figures but to date none have been found for individual spices. Canadian spice production has been limited to a few crops grown on a small scale. Caraway, coriander, dill and fenugreek have been grown in Alberta; at one time there were over 1,000 acres of coriander grown in Alberta. Horseradish and garlic have been grown on a small scale in Ontario. Small market garden production of some spices have been attempted at various times throughout the country. Figures 2 and 3 illustrate countries of origin throughout the world for a number of spices.

### U.S. AND CANADIAN IMPORTS

Canadian imports of selected spices for 1988 were provided by Industry, Science and Technology Canada. Import data are broken down by country of origin, by province importing the spice and by both quantity and value.

FIGURE 2 EUROPEAN COUNTRIES OF ORIGIN OF SPICES

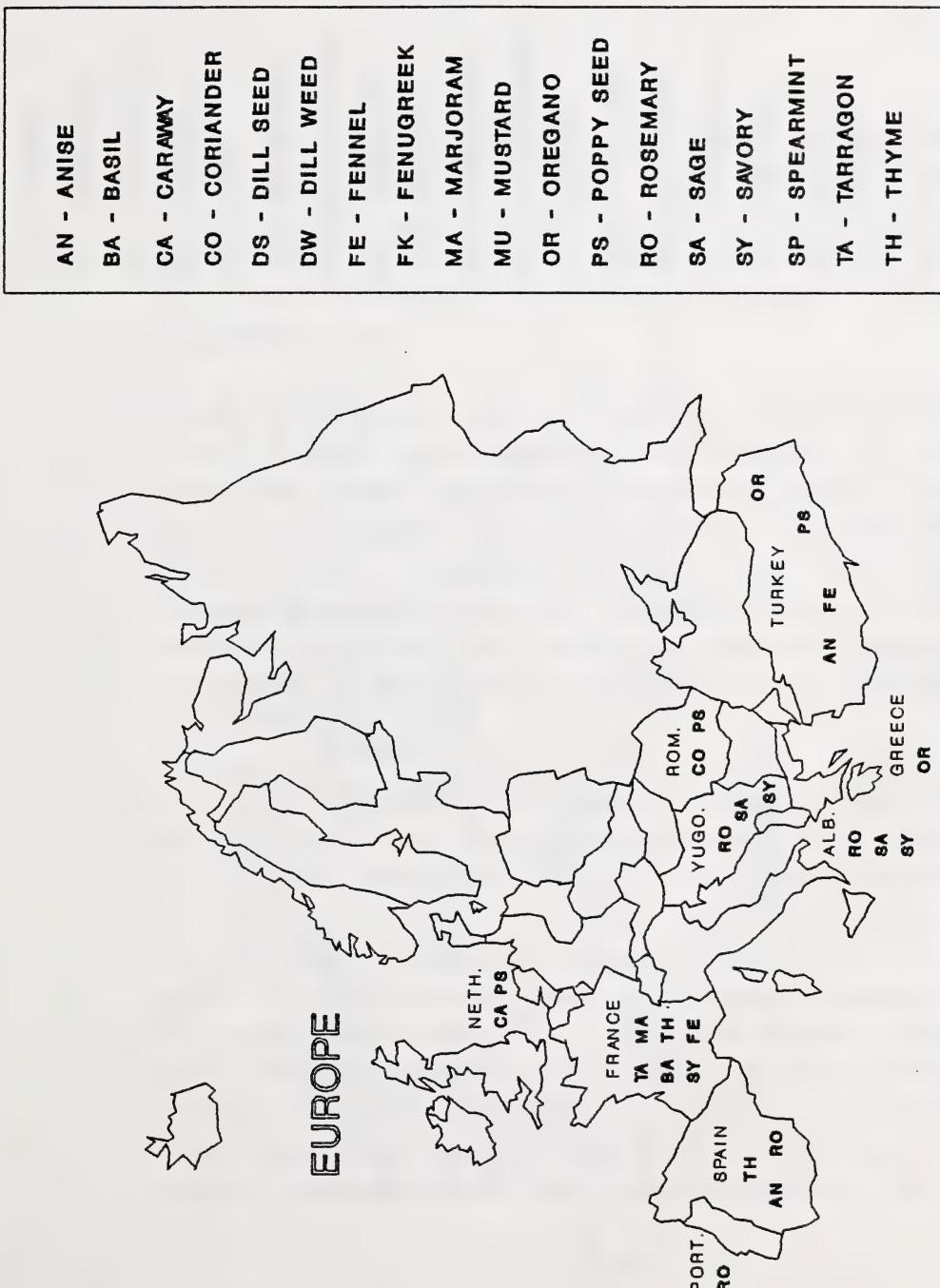
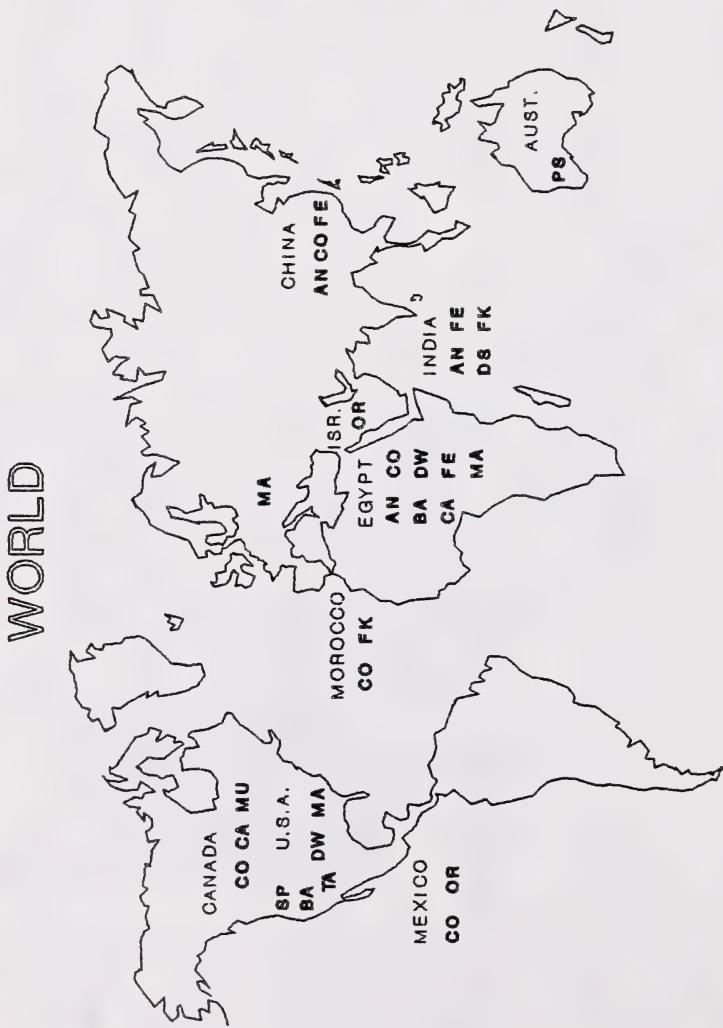


FIGURE 3 COUNTRIES OF ORIGIN OF SELECTED SPICES

|                 |
|-----------------|
| AN - ANISE      |
| BA - BASIL      |
| CA - CARAWAY    |
| CO - CORIANDER  |
| DS - DILL SEED  |
| DW - DILL WEED  |
| FE - FENNEL     |
| FK - FENUGREEK  |
| MA - MARJORAM   |
| MU - MUSTARD    |
| OR - OREGANO    |
| PS - POPPY SEED |
| RO - ROSEMARY   |
| SA - SAGE       |
| SY - SAVORY     |
| SP - SPEARMINT  |
| TA - TARRAGON   |
| TH - THYME      |



Import data in this detail are not available prior to 1988. Total Canadian imports for 1988 for anise, coriander, caraway, fennel, dillseed and poppy seed are reported in Table 1. As well, Canadian spice imports are widely estimated by the trade to be about 10 percent of U.S. imports for which there are more detailed data.

Figure 4 shows average yearly U.S. imports of spices from 1964 to 1987. Spices are grouped into herbs and seeds. The graph clearly indicates volumes of use with average imports of cumin and caraway of over 3,000 tonnes annually. The graph only indicates imports; consumption patterns may be very different considering domestic production. As well, trends in use are not indicated in the graph. Imports of individual spices are included in the Spice Profiles section and are more indicative of use over time.

The U.S.D.A. reports import values for a number of spices. In 1986 the total value of spice imports into the U.S. amounted to over \$383 million U.S. dollars. Pepper imports accounted for nearly half of that value. Mustard imports were valued at over \$13 million dollars and sesame seed import value totalled nearly \$25 million dollars. Most of the spices of interest to Alberta had import values of \$1 to \$2 million dollars. Oregano had a fairly high import value of nearly \$8 million dollars followed by sage at \$5 million and caraway at \$4 million. These dollar values are of interest to Alberta in terms of the province becoming a source for some spice imports to the U.S.

TABLE 1  
CANADIAN SPICE IMPORTS FOR 1988

| SPICE        | COUNTRY OF ORIGIN | QUANTITY<br>(kg) | VALUE<br>('000 of \$(Can)) |
|--------------|-------------------|------------------|----------------------------|
| <b>ANISE</b> |                   |                  |                            |
| whole seed   | Turkey            | 58819            | 132                        |
|              | India             | 6067             | 19                         |
|              | Egypt             | 4521             | 10                         |
|              | Spain             | 4375             | 9                          |
|              | China             | 4073             | 12                         |
|              | U.S.              | 3651             | 17                         |
|              | Hong Kong         | 2535             | 6                          |
|              | Others            | 2007             | 9                          |
|              | TOTAL             | 86048            | 214                        |
| <hr/>        |                   |                  |                            |
| ground seed  | U.S.              | 19056            | 19                         |
|              | India             | 734              | 2                          |
|              | West Germany      | 707              | 2                          |
|              | China             | 450              | 1                          |
|              | Netherlands       | 432              | 1                          |
|              | Hong Kong         | 316              | -                          |
|              | France            | 240              | -                          |
|              | Others            | 948              | 7                          |
|              | TOTAL             | 22883            | 32                         |

TABLE 1 continued

| SPICE             | COUNTRY OF ORIGIN | QUANTITY<br>(kg) | VALUE<br>('000 of \$(Can)) |
|-------------------|-------------------|------------------|----------------------------|
| <b>CORIANDER</b>  |                   |                  |                            |
| whole seed        | Morocco           | 72736            | 115                        |
|                   | India             | 22842            | 65                         |
|                   | U.S.              | 12753            | 35                         |
|                   | U.K.              | 4850             | 15                         |
|                   | Pakistan          | 3258             | 6                          |
|                   | Belgium           | 1453             | 5                          |
|                   | Others            | 3430             | 13                         |
|                   | TOTAL             | 121322           | 254                        |
| <hr/>             |                   |                  |                            |
| crushed or ground | India             | 11333            | 23                         |
|                   | U.S.              | 9390             | 25                         |
|                   | Morocco           | 2158             | 7                          |
|                   | Pakistan          | 1428             | 2                          |
|                   | Others            | 2837             | 9                          |
|                   | TOTAL             | 27146            | 66                         |

TABLE 1 continued

| SPICE             | COUNTRY OF ORIGIN | QUANTITY<br>(kg) | VALUE<br>('000 of \$(Can)) |
|-------------------|-------------------|------------------|----------------------------|
| <b>CARAWAY</b>    |                   |                  |                            |
| whole seed        | Netherlands       | 39702            | 73                         |
|                   | U.S.              | 8114             | 15                         |
|                   | Egypt             | 4451             | 10                         |
|                   | India             | 4806             | 6                          |
|                   | Others            | 2077             | 7                          |
|                   | TOTAL             | 56150            | 111                        |
| <hr/>             |                   |                  |                            |
| crushed or ground | U.S.              | 1495             | 4                          |
|                   | India             | 643              | 2                          |
|                   | Netherlands       | 524              | -                          |
|                   | China             | 405              | 1                          |
|                   | France            | 240              | -                          |
|                   | Indonesia         | 203              | -                          |
|                   | Others            | 761              | 5                          |
|                   | TOTAL             | 4271             | 12                         |

TABLE 1 continued

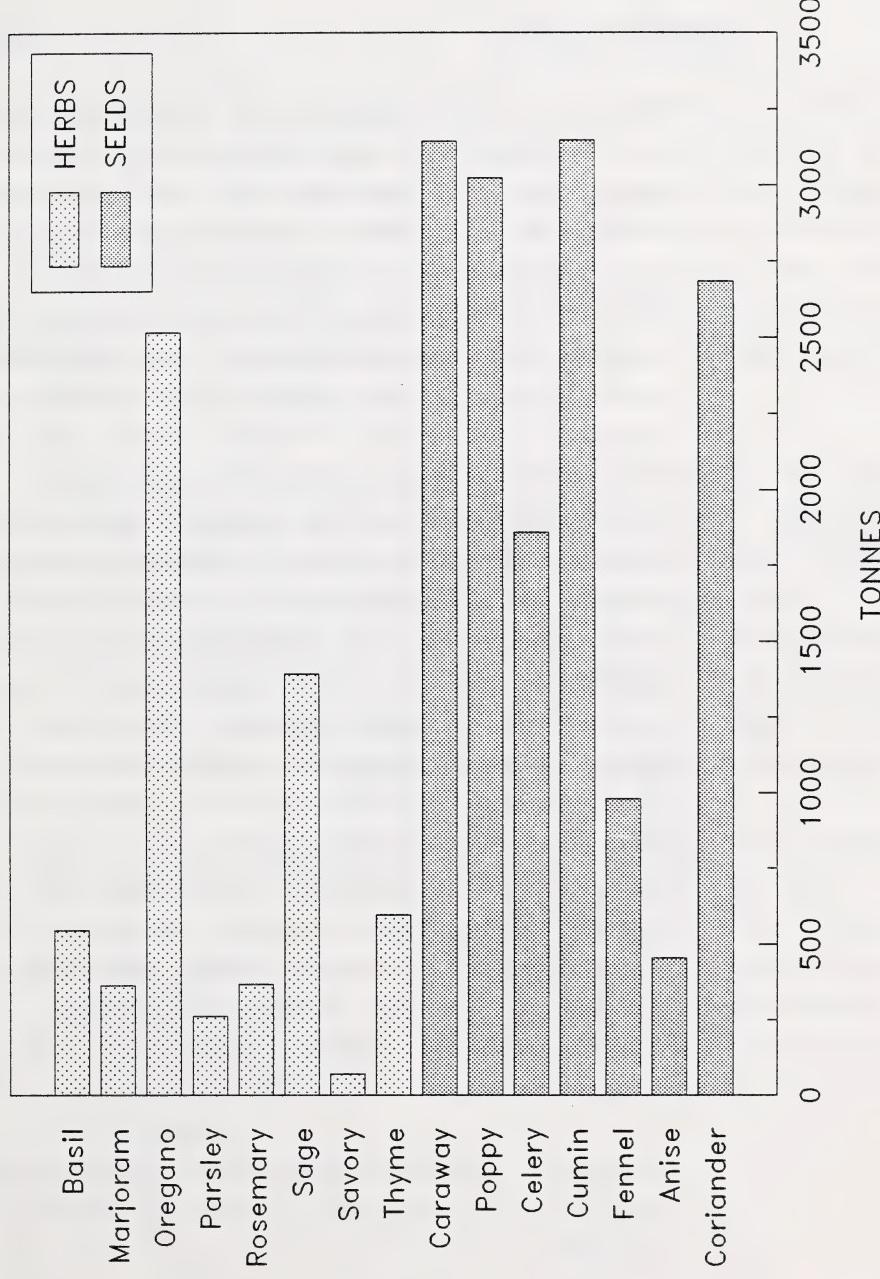
| SPICE        | COUNTRY OF ORIGIN | QUANTITY<br>(kg) | VALUE<br>('000 of \$(Can)) |
|--------------|-------------------|------------------|----------------------------|
| <b>DILL</b>  |                   |                  |                            |
| seeds        | India             | 19728            | 38                         |
|              | U.S.              | 17915            | 67                         |
|              | Turkey            | 7035             | 5                          |
|              | Pakistan          | 6088             | 5                          |
|              | Japan             | 6083             | 31                         |
|              | Italy             | 2531             | 9                          |
|              | Thailand          | 1171             | 21                         |
|              | Other             | 4899             | 176                        |
|              | TOTAL             | 65450            | 352                        |
| <hr/>        |                   |                  |                            |
| <b>POPPY</b> |                   |                  |                            |
| seeds        | Netherlands       | 436527           | 408                        |
|              | U.S.              | 247208           | 164                        |
|              | Australia         | 75818            | 85                         |
|              | Turkey            | 42102            | 41                         |
|              | Nicaragua         | 12474            | 27                         |
|              | China             | 10459            | 7                          |
|              | Pakistan          | 6944             | 5                          |
|              | India             | 5107             | 4                          |
|              | Mexico            | 2041             | 2                          |
|              | Other             | 592              | 4                          |
|              | TOTAL             | 839272           | 747                        |

Imports of some essential oils to the U.S. are also reported by the U.S.D.A. Anise oil imports were valued at \$215 thousand dollars in 1986. Caraway oil imports were valued at \$234 thousand; oregano oil at \$112 thousand, rosemary oil at \$649 thousand, spearmint oil at \$172 thousand and thyme oil at \$196 thousand dollars. Essential oils for those spices are also produced in the U.S., however, production quantities are unknown.

FIGURE 4

AVERAGE YEARLY U.S. IMPORTS OF HERBS AND SEEDS  
1964 TO 1987

U.S. IMPORTS



### CONSUMPTION TRENDS

Future trends in consumption of spices have been reported in the Chemical Marketing Reporter and various articles on spices, and were discussed with industry representatives in the interviews. Overall spice use is growing in the U.S. and Canada. Food industry demand is increasing with growing volumes of packaged and processed foods being marketed. Consumer tastes are moving away from bland foods to spicier foods and towards ethnic foods as the cultural mosaic in both countries becomes more varied. Demand for coriander and fenugreek is growing as the Indian population in Canada grows and as consumers in general experiment with ethnic foods. The Vietnamese have introduced a taste for cilantro, the fresh young leaves of coriander, into Canadian menus. There is a trend towards use of natural products including flavor ingredients even with potentially higher costs of natural flavors over synthetic flavors. The fresh herb market is growing as well although the market potential for fresh herbs is considerably less than that for dried herbs or oils and oleoresins. The oleoresin market is growing at a rate of 8-10 percent annually according to both Norac and Quest with the growth rate expected to continue and perhaps increase in the future. Almost all of the brokers and millers indicated an interest in domestic sources for spices. Customers are demanding cleaner product and some have indicated a willingness to pay a premium for high quality supplies.

In general, industry expectations are that spice use will continue to grow providing growing opportunities for producers in Canada.

## PRICES

The Chemical Marketing Reporter is one of the most thorough sources of spice price data. New York spot prices are reported on a weekly basis. As well, the U.S.D.A. Foreign Agricultural Service publication, Teas, Spices and Essential Oils, reports annual price summaries. Prices were also obtained from the surveys set to industry representatives. Prices for individual spices are reported in the profile section of the report.

Prices are established between buyers and sellers on the world market. Brokers in Canada negotiate with their agents in source countries. If brokers' customers are unhappy with a price, it is renegotiated by the broker and agent. As indicated previously, there is some reluctance to using the New York spot market since prices are higher than those that can be obtained from individual deals with overseas agents. The spot market is used when immediate supplies are required.

Prices often vary according to the spice source. For example, California basil is priced at a premium over basil grown in France and French basil is more expensive than Egyptian basil. Usually a function of cleanliness, prices are also determined according to oil levels or characteristics. Premium prices are usually available for product that is very clean and has the color and sometimes seed shape desired by the customer.

The nuclear accident at Chernobyl affected the price of spices from Europe to the extent that prices still have not completely recovered. Supplies from Europe were very restricted due to radioactivity problems. Standards for radioactivity levels varied between countries; Canada's standards were lower than those of the U.S. Consequently, prices in the U.S. for some spices increased dramatically while in Canada, supplies were dumped to some extent and prices dropped. Adjustments are still taking place in the market.

Raw or unprocessed spice is priced considerably below ground or extracted spice. Oils and oleoresins command much higher prices partly since their flavors are more highly concentrated. Further processing increases the price of a spice. Since the industry is moving towards a more processed product, there is a growing market for higher priced product and greater potential for profit in the spice industry.

SPICE PROFILES

## ANISE

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### Description

- Pimpinella anisum
- licorice-like flavor
- volatile oil - Anethole
- annual member of Umbelliferae family
- requires long growing season
- 1.5 - 4.0% essential oil

### Sources

- Spain is the principle source providing a top quality product with better flavor and higher volatile oil content than other sources
- Turkey and Egypt also major sources but have had problems with cleanliness
- India and China also produce some anise

### Usage

- seeds used whole, ground or extracted as essential oils and oleoresins
- used in baking, cheese, candy, sausage, pickles, salad dressings, fruit, fish and shellfish and liqueurs (Anisette)
- also used in some perfumes

### Industry Requirements

- cleanliness has been a problem - clean seed required
- greenish brown seeds

### Supply and Demand

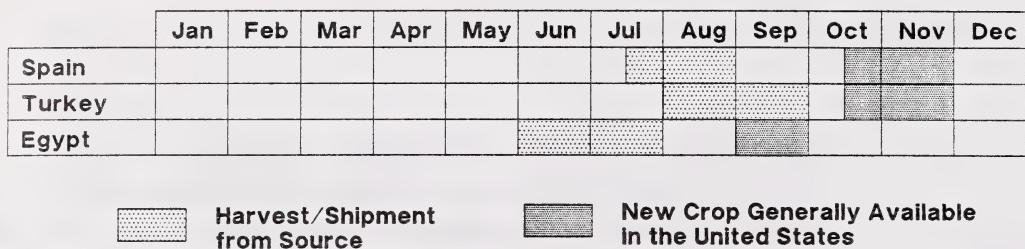
- imports have been increasing steadily with larger increases in imports in the last 5 years
- U.S. imports in 1987 reached over 1,000 tonnes with nearly one-half of imports sourced from Spain
- value of imports to the U.S. totalled \$1.2 million in 1986

- prices have been highly variable and are now just over \$1.00/lb. (U.S.) for Spanish, Turkish and Egyptian seed
- anethole prices ranged from \$4.50-\$4.60/lb. (U.S.) in 1987
- anise oil price in 1987 was \$4.04/lb (U.S.) (main commercial source is star anise)
- star anise is the fruit from a small evergreen tree (Illicium anisatum) and has similar aromatic and chemical characteristics to true anise

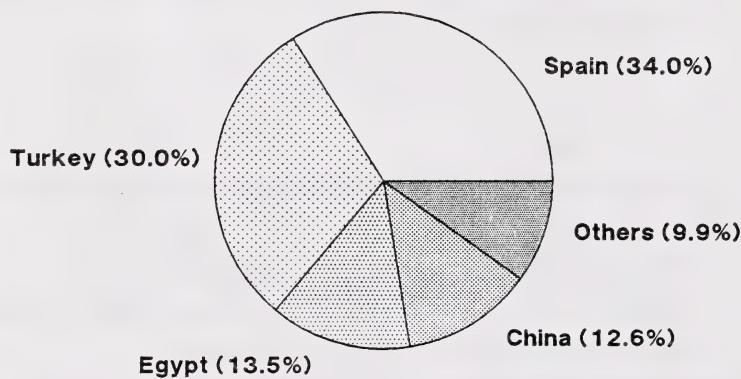
#### Opportunities for Alberta

- research at Brooks has indicated good potential for production in Alberta
- Morden reports fair potential for anise
- industry needs clean seed which Alberta could produce
- earlier maturing varieties are required
- with a seed price of over \$1.00/lb. and oil prices considerably higher than that, anise could be a valuable crop for Alberta

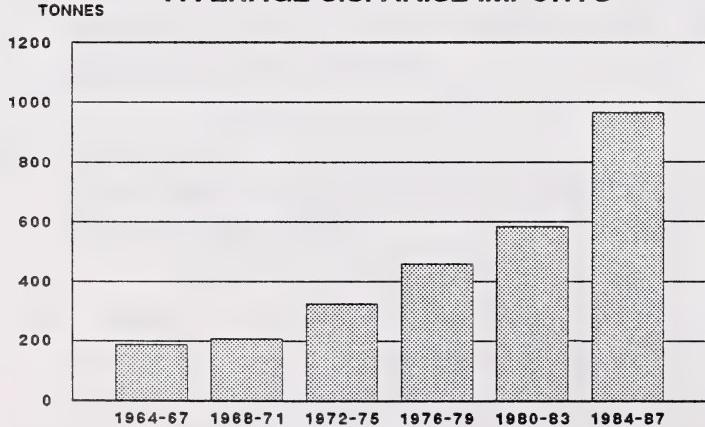
## AVAILABILITY OF ANISE IN THE U.S.



## PERCENTAGE OF U.S. ANISE IMPORTS BY COUNTRY 1981-1985



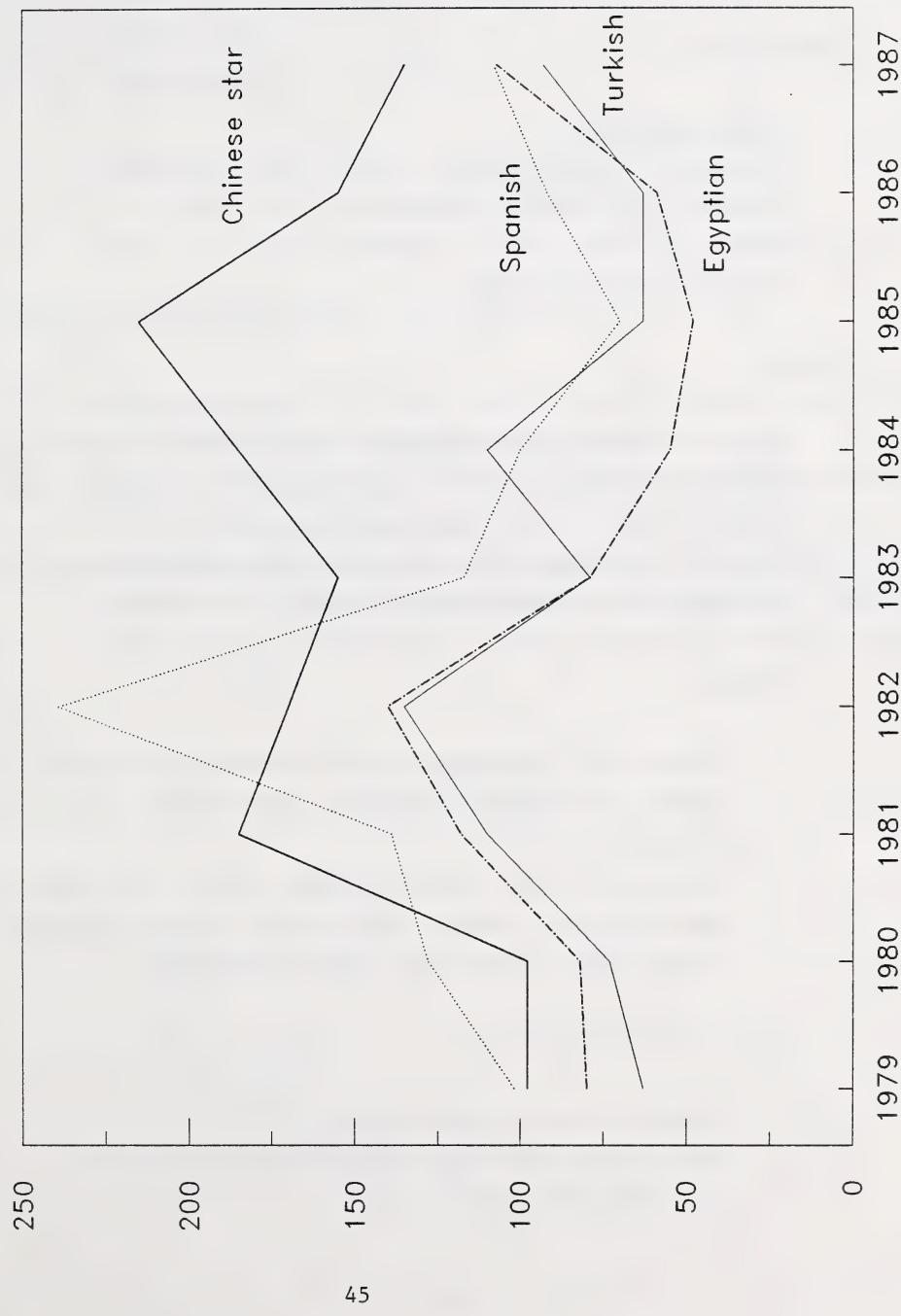
## AVERAGE U.S. ANISE IMPORTS



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR ANISE

(cents/lb.)



## BASIL

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### Description

- Ocimum basilicum
- aromatic clove-like flavor
- volatile oil - Methyl Chavicol
- annual
- native to Iraq and India

### Sources

- Egypt is the principal source as well as the U.S. and France
- California product is the most expensive and has the best quality
- French product is the most expensive import
- Egypt is the largest source with a lower cost product than France
- also grown in India, Iraq and Israel

### Usage

- leaves and flowering tops are harvested to be used whole and ground, as extracted oleoresin and essential oils and encapsulated
- associated with tomato dishes; can be used with stuffings, meat, poultry, seafood, eggs, pizza, soups, dressings, sauces and in blends with other seasonings

### Industry Requirements

- minimal stem and chaff content
- very clean since basil is sold as a whole spice
- uniform green color

### Supply and Demand

- imports are increasing
- U.S. production is potentially 750,000 lbs. annually
- price of basil: domestic (U.S.) \$3-4/lb.; imported \$1/lb.

### Potential for Alberta

- good potential for very clean product, (whole, ground and oleoresins) priced below California product
- Alberta basil should be tested by millers to compare quality with that of current sources
- replacing, for example, 1,000 tonnes of U.S. imports with Canadian basil priced between domestic and imported at \$2.00/lb. would yield \$4.4 million in basil exports to the U.S. alone

## AVAILABILITY OF BASIL IN THE U.S.

|        | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Egypt  |     |     |     |     |     |     |     |     |     |     |     |     |
| France |     |     |     |     |     |     |     |     |     |     |     |     |
| U.S.   |     |     |     |     |     |     |     |     |     |     |     |     |

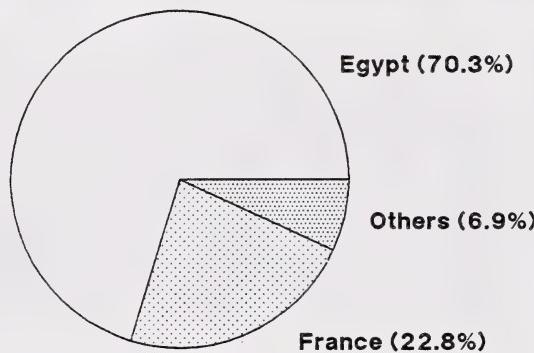


Harvest/Shipment  
from Source

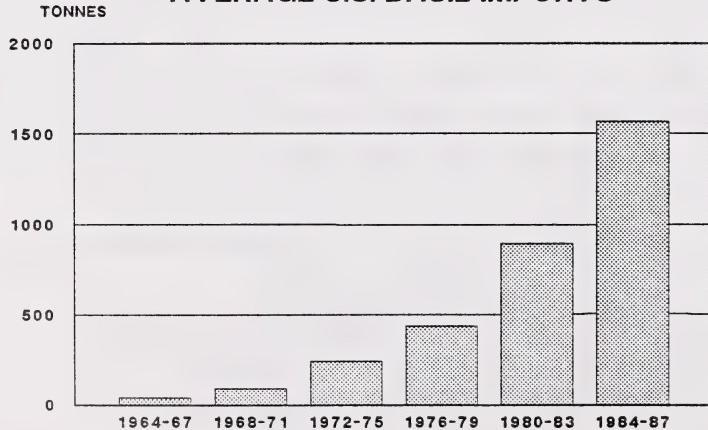


New Crop Generally Available  
in the United States

## PERCENTAGE OF U.S. BASIL IMPORTS BY COUNTRY 1981-1985



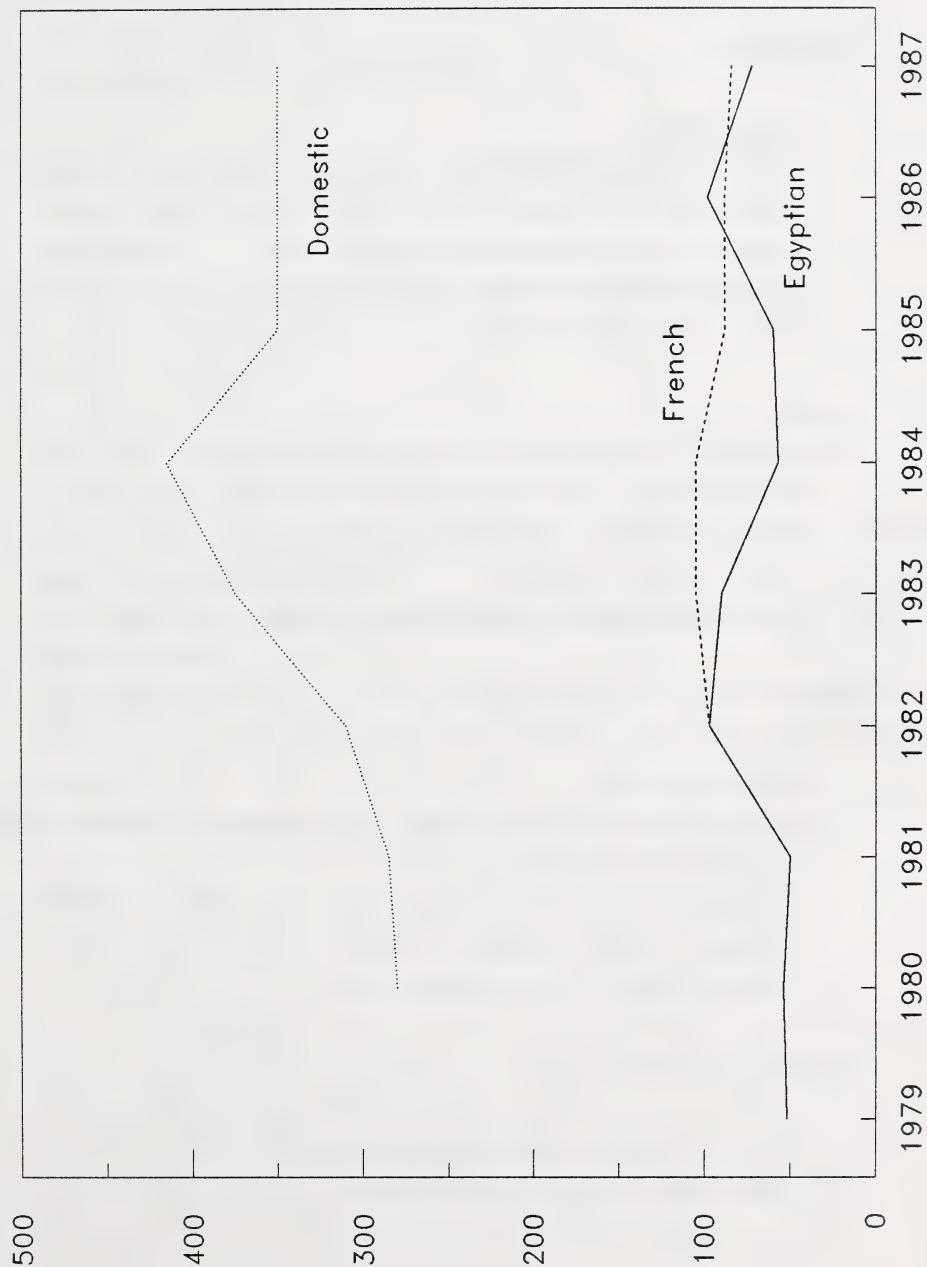
## AVERAGE U.S. BASIL IMPORTS



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR BASIL

(cents/lb.)



## CARAWAY

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### Description

- Carum carvi
- sweet but sharp flavor
- volatile oil: Carvone
- biennial, seed produced in second year
- well adapted to Alberta
- 3.0 - 7.0% essential oil

### Sources

- Netherlands is the main source
- Dutch caraway is most used by industry
- Egypt is also a source
- Alberta has grown several hundred acres

### Usage

- seed harvested
- seed is used whole and ground, as extracted oleoresin and essential oil, and encapsulated
- characteristic flavor in rye bread, also used in sauerkraut, cabbage, cheese, breads, cookies, fruit, pork, lamb and pickles
- baking industry is the largest user

### Industry Requirements

- free of stem and chaff, foreign matter
- large seeds, light to dark brown

## Supply and Demand

- imports have been steady over the last two decades
- Alberta and Ontario have produced a few hundred acres of caraway commercially
- prices of Dutch caraway average about \$0.65/lb. (U.S.)

## Potential for Alberta

- Dutch seed dominates the market and there may be difficulties breaking into that market
- millers and brokers are interested in a domestic source of clean seed with good oil content
- seed should be tested by millers to compare quality with Dutch and Egyptian seed
- replacing 3,000 tonnes of U.S. imports at a price of \$0.60/lb would yield nearly \$4 million (U.S.) in export value for caraway exports to the U.S.

## AVAILABILITY OF CARAWAY IN THE U.S.

|         | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Holland |     |     |     |     |     |     |     |     |     |     |     |     |
| Egypt   |     |     |     |     |     |     |     |     |     |     |     |     |

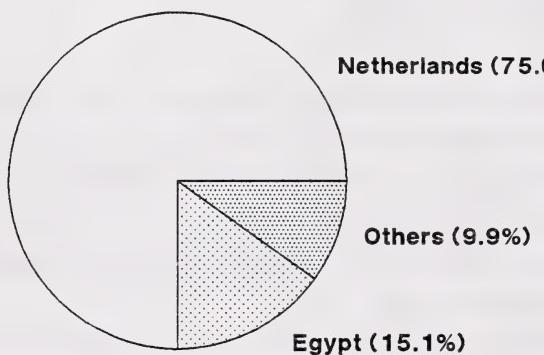


Harvest/Shipment  
from Source

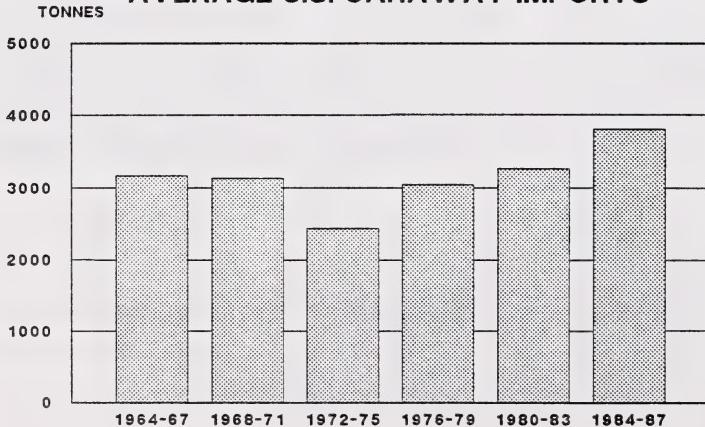


New Crop Generally Available  
in the United States

## PERCENTAGE OF U.S. CARAWAY IMPORTS BY COUNTRY 1981-1985



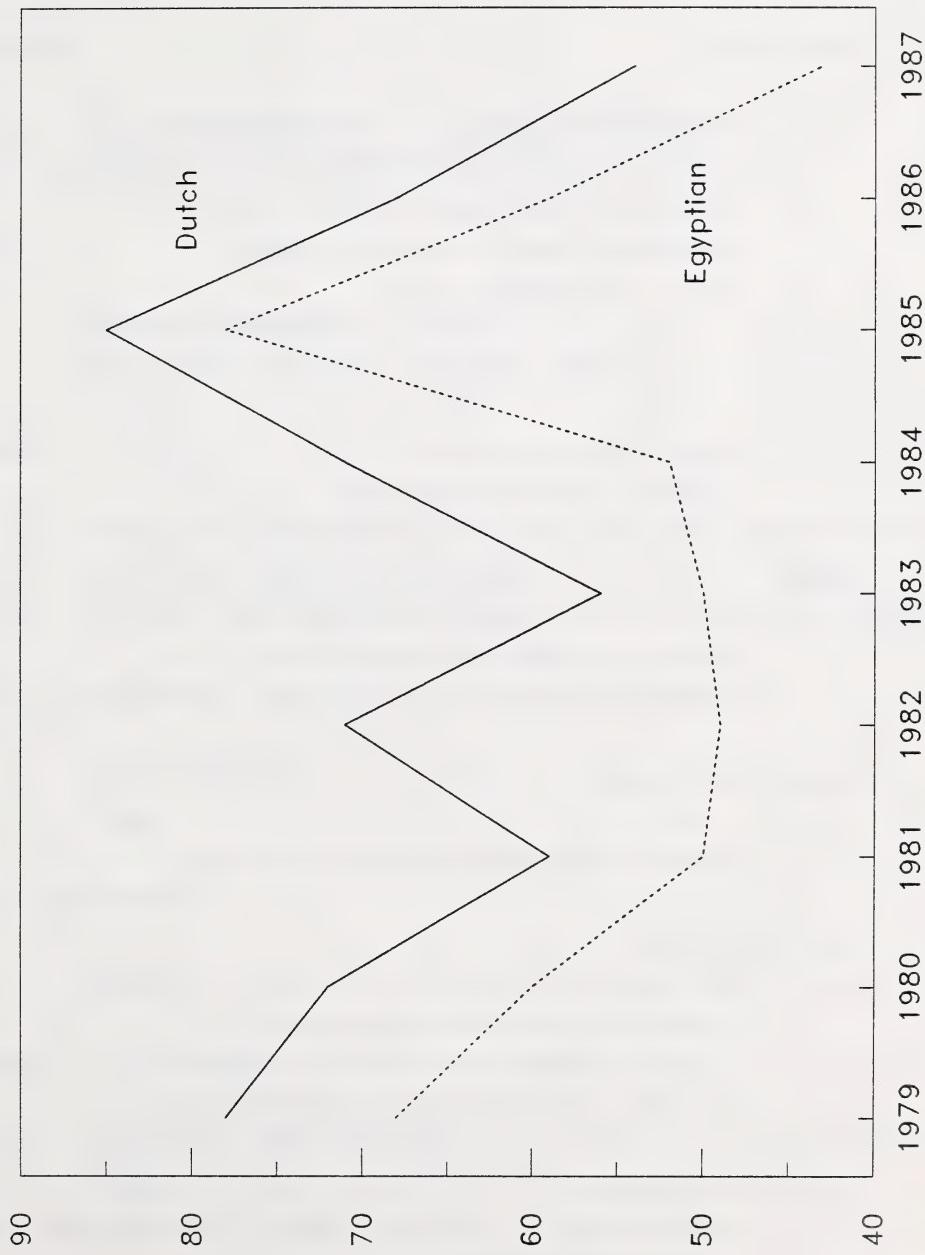
## AVERAGE U.S. CARAWAY IMPORTS



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR CARAWAY

(cents/lb.)



## CHAMOMILE

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### Description

- Matricaria chamomilla
- Roman or English types are perennial though not winter hardy in Canada - most commonly used by industry
- German or Hungarian types are annual
- 0.3 - 1.0% essential oil

### Sources

- Egypt is a major grower
- common in small herb gardens

### Usage

- flowers are dried and used in teas
- health food industry is a big user

### Industry Requirements

- industry uses mostly the perennial types

### Supply and Demand

- Germany is one of the major markets
- there is a small niche market in the U.S.
- no import or price figures are available

### Potential for Alberta

- winter type not hardy in Alberta, thus the herb has little potential for Alberta

## CHIVES

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### Description

- Allium schoenoprasum
- hardy perennial, easily propagated by seed

### Sources

- Germany, Scandinavia
- more common to northern temperate climates

### Usage

- fresh and freeze-dried leaves are the most common products
- block frozen chives are also sold
- air dried and dehydrated products are used in the food industry

### Industry Requirements

- bright green color
- clean

### Supply and Demand

- brokers in Canada deal with product from Germany and the U.S.

### Potential for Alberta

- chives is a high value-added product when sold freeze-dried or frozen

## CORIANDER

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### Description

- Coriandrum sativum
- annual member of the Umbelliferae family
- volatile oil - d-Linalool
- 0.3 - 1.1% essential oil

### Sources

- two major U.S. suppliers - Morocco and Romania
- also grown in Mexico, Egypt, China and India
- Alberta grows some coriander - over 1000 acres were grown at one time

### Usage

- seeds are used whole and ground in pickles, candies, baking, curry, meats, cheese, soups and sauces as well as in liquors (especially gin)
- oleoresin is used extensively in the processed meat industry
- sausage industry is the largest user of oleoresin; liquor industry is the largest user of seed
- coriander is the principle ingredient in curry (40-50%)
- young leaves are used as an herb called cilantro, popular in Vietnamese and Chinese cuisine

### Industry Requirements

- industry is used to Moroccan seed which tends to be large and has a particular flavor
- a broker indicated that European buyers like Canadian coriander
- seeds of Canadian coriander are smaller with a slightly different flavor profile than seed from other sources
- seed needs to be clean, uniform and light brown in color, especially when used for curry

- Indian seed is the best quality in terms of flavor but is very expensive; Moroccan seed is somewhat lower in price and quality; Romanian seed is darker in color, has a higher volatile oil content and is most commonly used for extraction

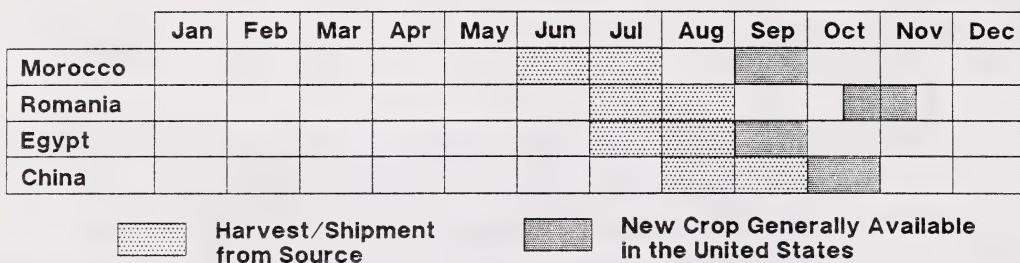
#### Supply and Demand

- U.S. imports have risen considerably in the last 10 years and are now at about 4,000 tonnes annually
- demand is growing with an increasing Indian market in Canada and the U.S., and growth in consumption of ethnic foods as well as a growing meat industry
- Shah Trading is the largest buyer in Canada and they have bought Canadian coriander regularly (inconsistent seed size and quality have been a problem with Canadian grown coriander)
- U.S. imports were valued at \$1.4 million in 1986
- coriander seed prices are low ranging from \$0.24/lb. to \$0.38/lb (U.S.) in the past 8 years
- Moroccan seed is slightly higher priced than Romanian
- a recent price of \$0.285/lb. U.S. in Toronto was quoted from one broker
- coriander oil was priced at \$32.00-\$34.00/lb. U.S. in 1986 making the oil a considerably higher valued product than the seed

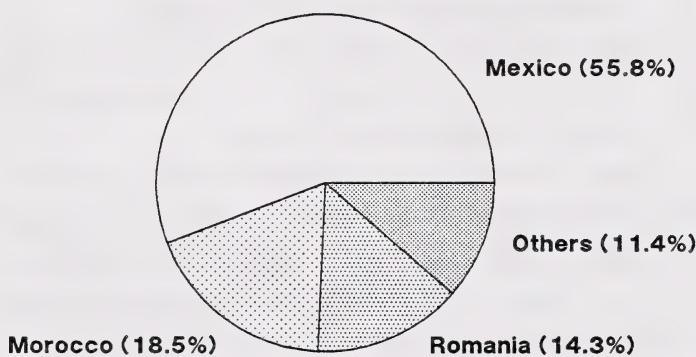
#### Potential for Alberta

- good potential for both seed and fresh herb
- seed should be extracted for greater value-added product
- production is well established in Alberta
- very low production costs in some source countries contribute to low seed prices and make competition from Alberta a challenge to overcome

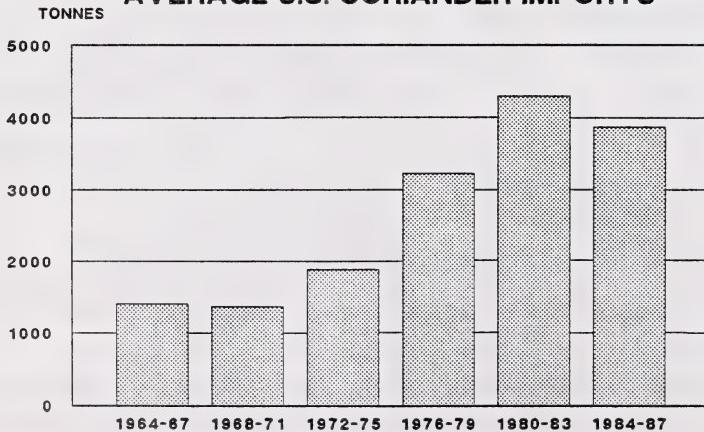
## AVAILABILITY OF CORIANDER IN THE U.S.



## PERCENTAGE OF U.S. CORIANDER IMPORTS BY COUNTRY 1981-1985



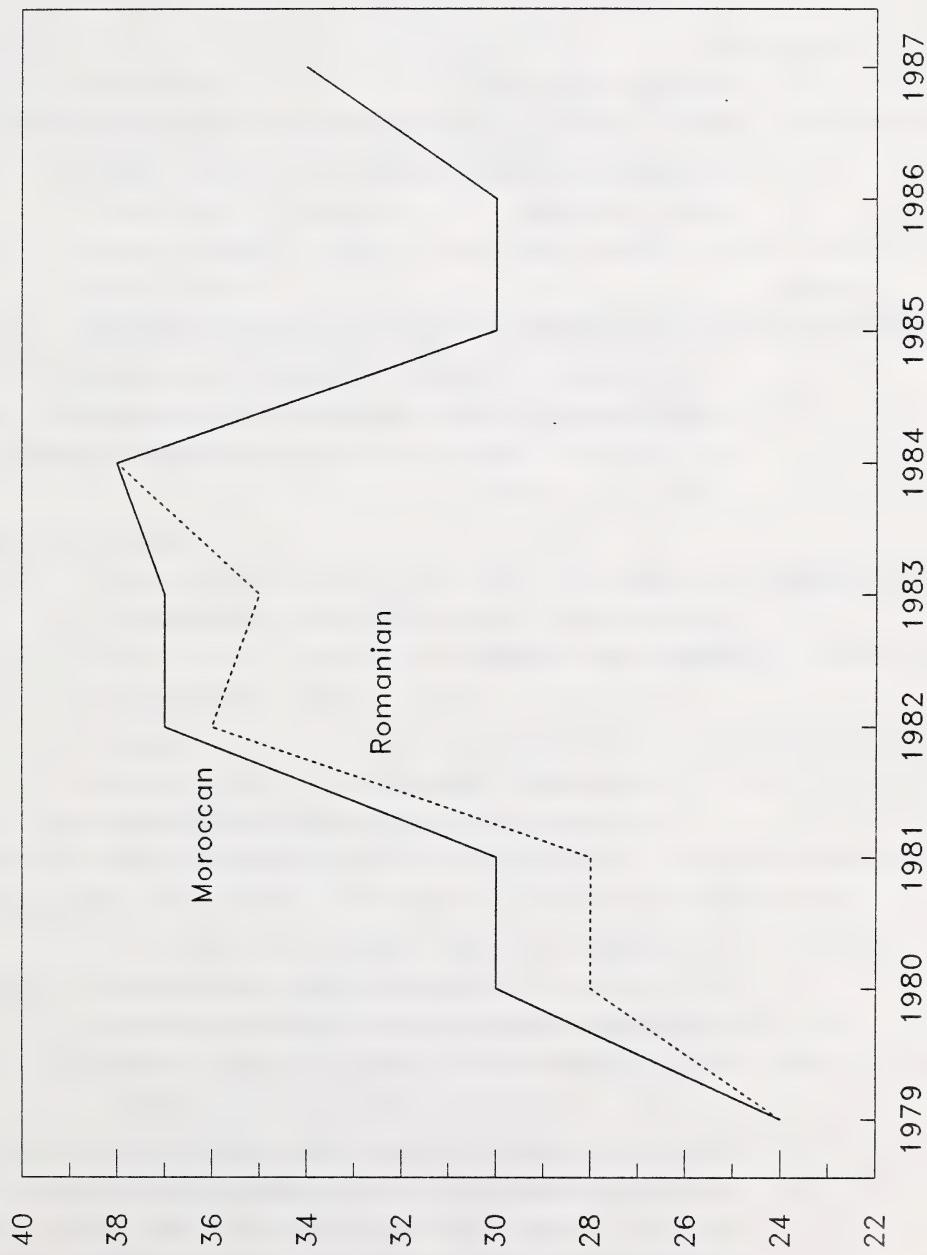
## AVERAGE U.S. CORIANDER IMPORTS



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR CORIANDER

(cents/lb.)



## DILL

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### Description

- Anethum graveolens
- annual, native to Spain, member of Umbelliferae family
- volatile oil - d-Carvone
- grown from seed

### Sources

- dill seed imported almost exclusively from India
- some Canadian production of seed in Manitoba and Ontario
- also grown in India, England, U.S., Scandinavia and Europe
- dill weed is supplied by California which produces the best quality in the world

### Usage

- both seed and leaves (dill herb) are used
- there are 5 products:
  - dill herb - fresh or dried leaves from the top 8 inches of the plant
  - dill seed - ripe fruit
  - dillweed oil - (dill oil or dill herb oil) - essential oil obtained from steam distillation of the whole plant
  - dillseed oil - essential oil distilled from crushed seeds
  - oleoresin - extracted from dill seed
- dill weed oil is produced mostly in Washington, Oregon and Idaho and is used commercially to make dill pickles
- dill seed oil is not used to a great extent in the U.S. or Canada
- dill weed is used in salads, egg dishes, cheese, salad dressings, breads and fish recipes and as a garnish
- seed and seed stocks are used in pickles, salads, sauerkraut, soups, stews, vegetables, curry, and in fish and chicken recipes

### Industry Requirements

- California dill herb is the best quality in terms of color and flavor and is the industry standard for the herb
- cleanliness is important
- seeds should be light brown (not green) and herb should be bright green
- seed is commonly barbered to remove the hair-like strand or whisker at one end of the seed
- carvone content is important to buyers, especially in extracted oils

### Supply and Demand

- India produces most of the dill seed imported to the U.S. and Canada
- dill herb is imported to Canada from California, Egypt and Germany
- Canadian spice packers import about 30,000 pounds of dried weed annually from Europe and California, and close to 100,000 pounds of dill seed per year
- between 500-700 tonnes of dill seed are imported annually by the U.S.; imports are neither increasing nor decreasing
- dill weed is produced in the U.S. and only about 135 tonnes of dill weed are imported annually
- a 1987 consulting report (Stevenson, Kellogg, Ernst and Whinney) reported that 150,000 pounds of fresh dill are used annually by Ontario food processors
- dill weed is priced at a premium - currently \$3.25/lb. U.S. for California product FOB farmgate while dill seed is priced at below \$1.00/lb. U.S. in Toronto
- prices for dill seed have ranged from \$0.35/lb. U.S. to \$0.99/lb. U.S. over the past 10 years

#### Potential for Alberta

- dill is well-adapted to Alberta growing conditions
- Canadian millers and brokers have bought Canadian dill and are interested in a Canadian supply
- the high-priced dried herb would be a valuable specialty product as would extracted herb oils
- dill seed is low-valued but has a greater use than the herb

## AVAILABILITY OF DILL SEED IN THE U.S.

|       | Jan | Feb      | Mar      | Apr      | May      | Jun      | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|----------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|
| India |     | [Dotted] | [Dotted] | [Dotted] | [Dotted] | [Dotted] |     |     |     |     |     |     |

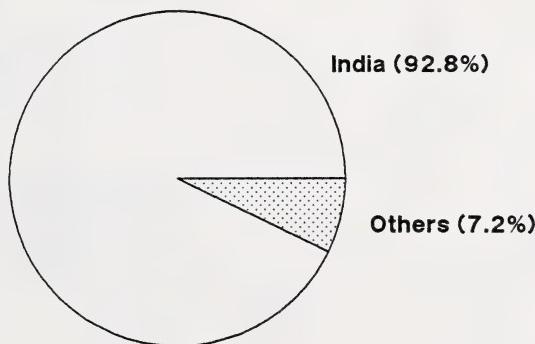


Harvest/Shipment  
from Source

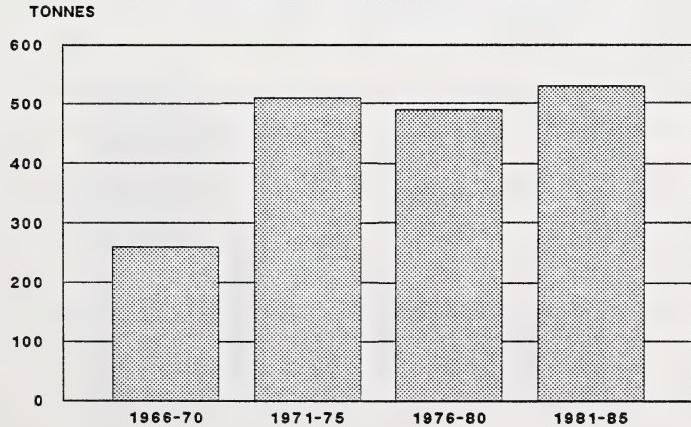


New Crop Generally Available  
in the United States

## PERCENTAGE OF U.S. DILL SEED IMPORTS BY COUNTRY 1981-1985

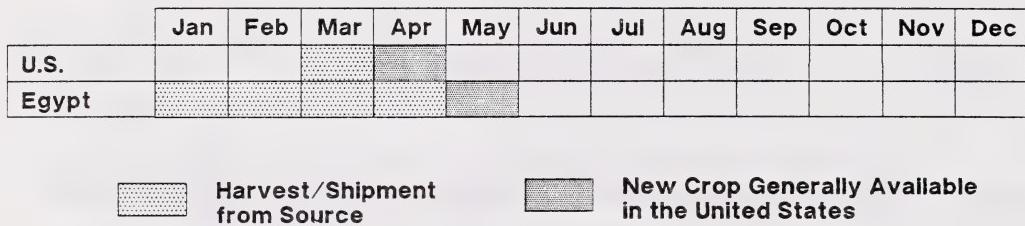


## AVERAGE U.S. DILL SEED IMPORTS



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

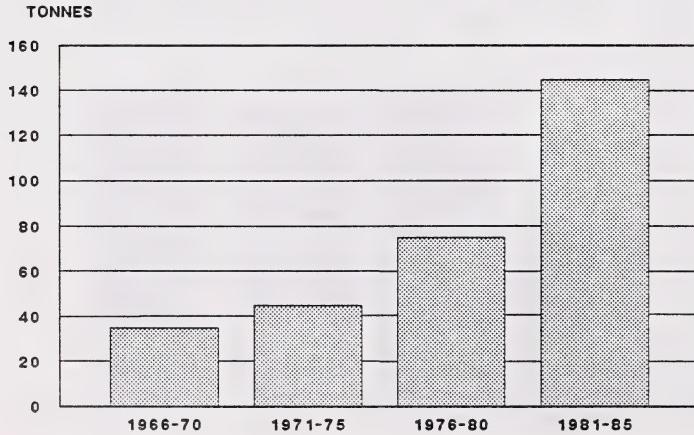
## AVAILABILITY OF DILL WEED IN THE U.S.



## PERCENTAGE OF U.S. DILL WEED IMPORTS BY COUNTRY 1981-1985



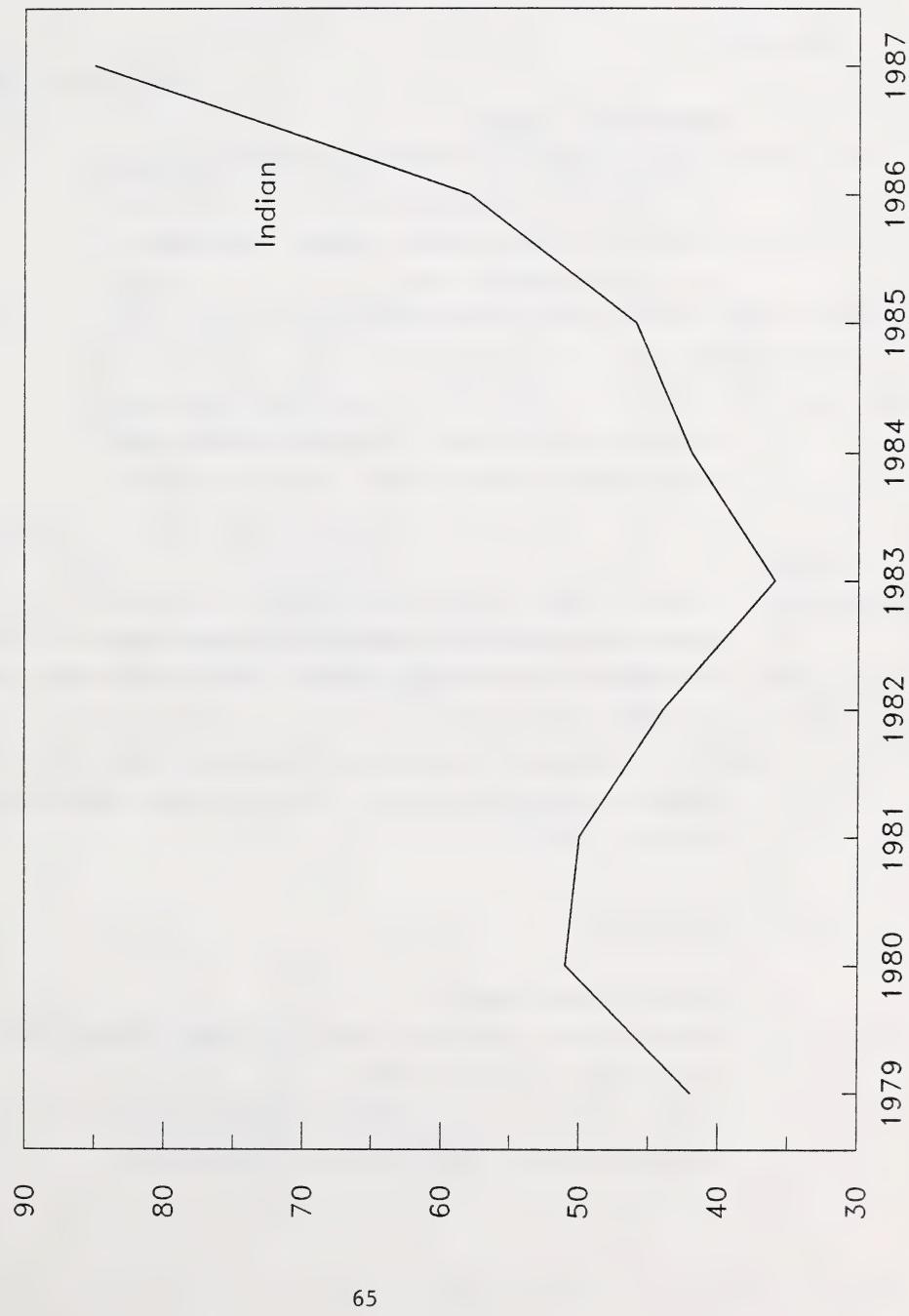
## AVERAGE U.S. DILL WEED IMPORTS



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR DILL SEED

(cents/lb.)



## FENNEL

---

### Description

- Foeniculum vulgare
- perennial member of Umbelliferae family
- volatile oil - Anethole
- flavor is licorice-like, similar to anise
- 2.5 - 6.5% essential oil

### Sources

- India is the principle source for fennel seed
- also grown in Turkey, Egypt, China and France

### Usage

- seeds are used whole or ground to flavor lamb, pork and beef; chicken and fish; tomato dishes; vegetables; soups and sauces; pickling mixtures
- dried leaves are sometimes used to garnish and flavor fish
- fennel oil used in pickles, perfumes, soap, liqueurs and licorice candy

### Industry Requirements

- greenish brown seeds
- some millers indicated they have had problems with lack of cleanliness in fennel seed
- Indian fennel is the premium for the industry due to its consistent color, good flavor and cleanliness

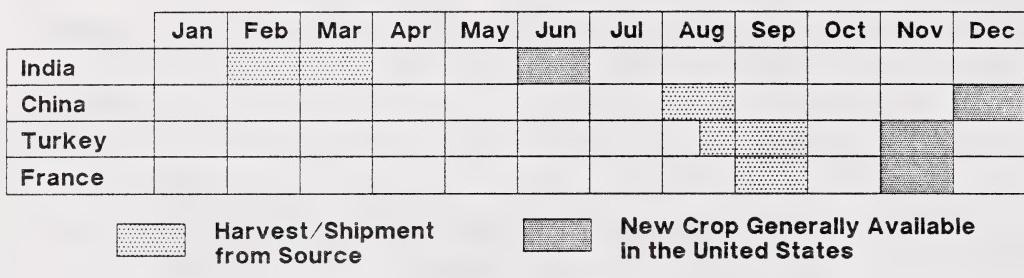
### Supply and Demand

- imports to the U.S. have been increasing steadily over the past decade as demand increases
- average U.S. imports between 1984 and 1987 reached over 2,000 tonnes
- prices have fluctuated between \$0.40 and \$0.95/lb. (U.S.) for Indian fennel seed and \$0.60/lb (U.S.) for Egyptian seed
- fennel oil was quoted at \$14.25/lb. (U.S.) on the spot market on December 5, 1988

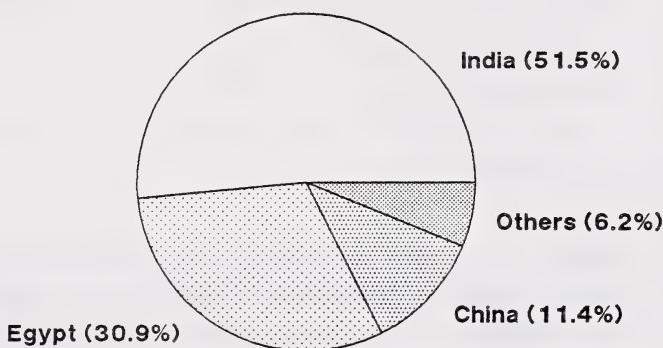
### Potential for Alberta

- prices for fennel seed are not high enough to encourage wide scale domestic production in the U.S. or Canada
- the steadily increasing imports of fennel to the U.S. are promising in terms of a strong U.S. demand thus there may be some potential for limited production of fennel in Alberta

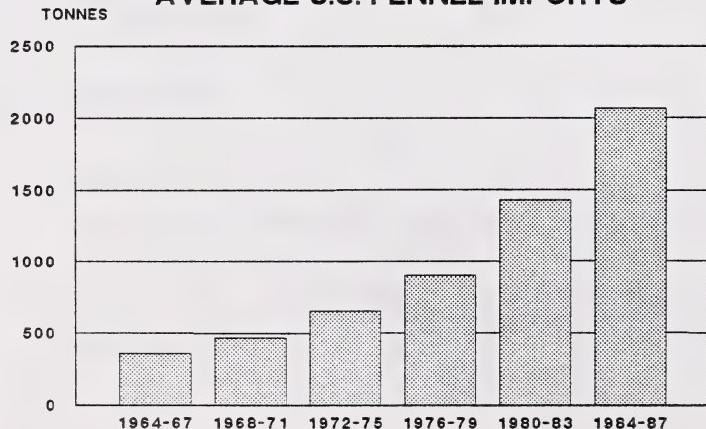
## AVAILABILITY OF FENNEL IN THE U.S.



## PERCENTAGE OF U.S. FENNEL IMPORTS BY COUNTRY 1981-1985



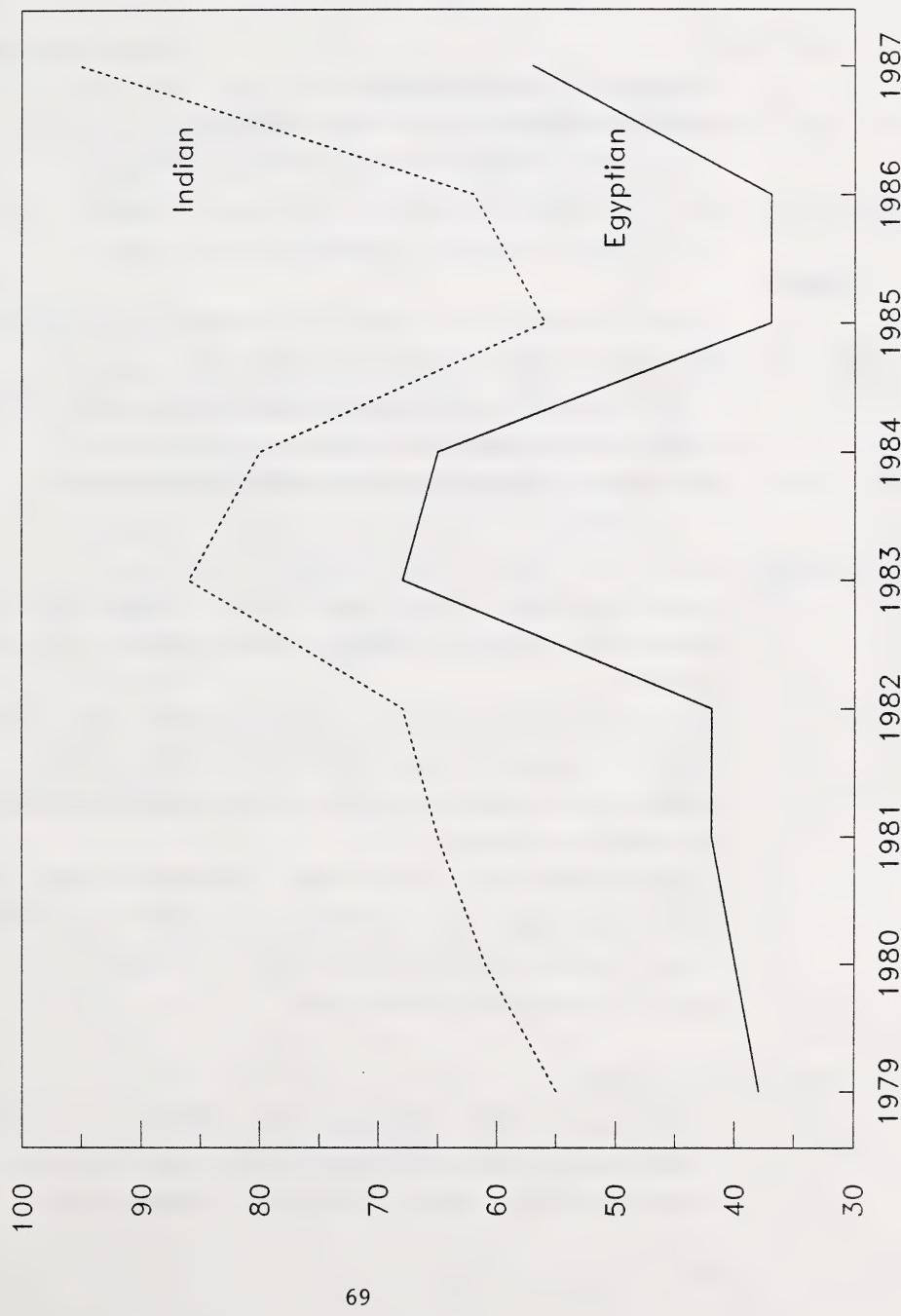
## AVERAGE U.S. FENNEL IMPORTS



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR FENNEL

(cents/lb.)



## FENUGREEK

---

### Description

- Trigonella foenum-graecum
- perennial member of the legume family
- long season, indeterminant-flowering plant
- 1.0 - 3.0% essential oil

### Sources

- India and Morocco are principle sources
- Turkey and Egypt also produce fenugreek
- India is the industry's prime source with a more uniform color than Moroccan
- each source produces unique quality characteristics

### Usage

- ground seed most widely used in curry (about 10% of the curry blend) as well as in pickling spice, chutney and confectionary products
- extracted product used as an artificial maple flavor - the Turkish variety is most often used for this purpose
- also used in animal feed as a flavor additive and whole plant is used as a forage
- limited medicinal use for the treatment of cows and horses
- adds nutritional value to food as fenugreek is a legume
- some pharmaceutical potential for a steroid called diosgenin that is extracted from the seed

### Industry Requirements

- according to Shah Trading, seed should be yellowish-brown (some Ontario-grown seed has been too light in color)
- seed should be clean and consistent in appearance

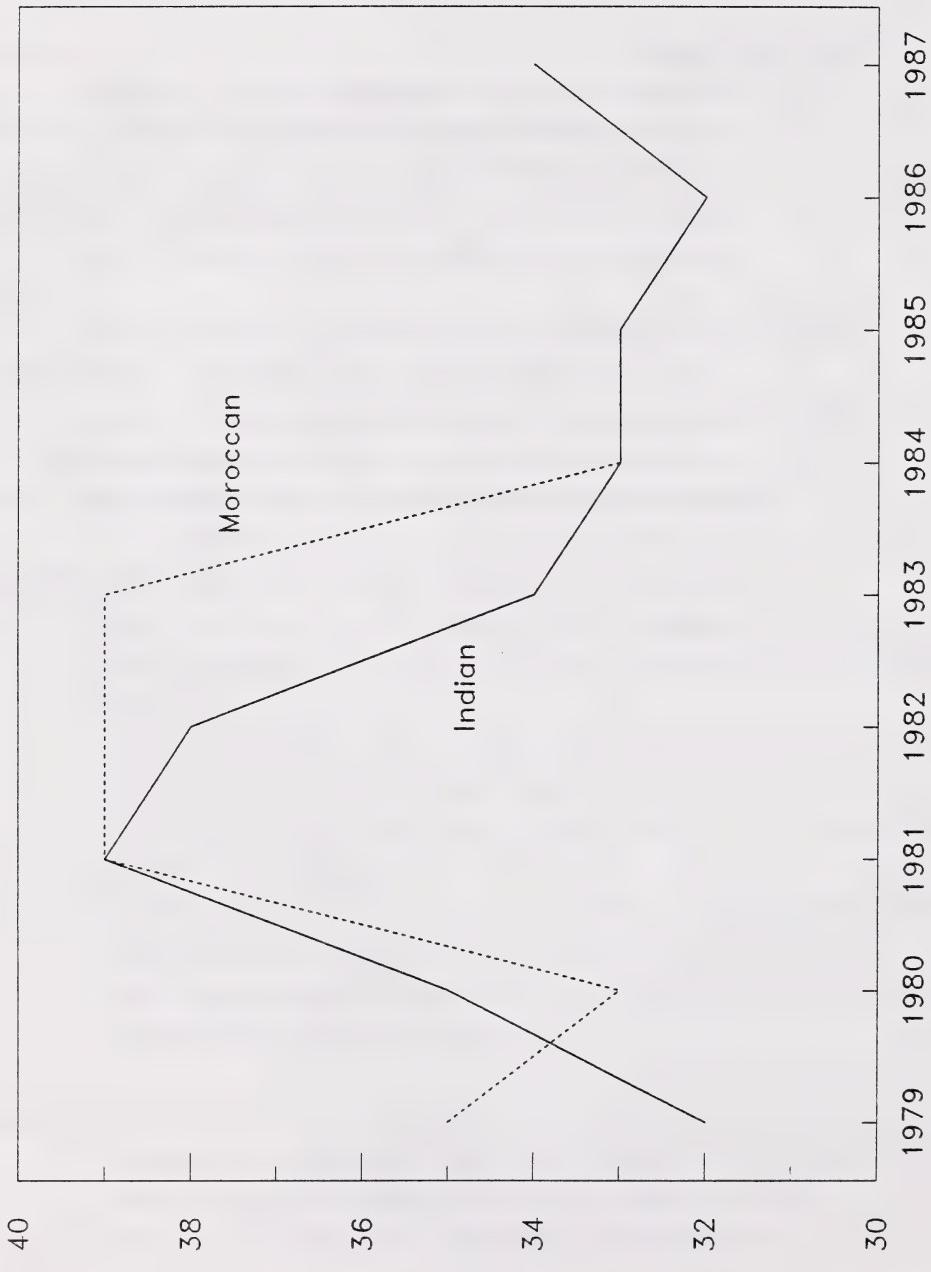
#### **Supply and Demand**

- no import data are available
- prices have been low - \$0.32-\$0.39/lb. (U.S.) over the past 8 years
- demand expected to increase in Canada with the growing Indian population and growing interest in ethnic foods

#### **Potential for Alberta**

- despite the problems with late maturity of fenugreek, there is fair potential for the crop in Alberta
- a water soluble solid extract is imported from the U.S. for making artificial maple flavor and Alberta could possibly replace some of the U.S. product
- seed with a consistent yellow-brown color and even maturity is needed

APPROXIMATE NEW YORK SPOT PRICES FOR FENUGREEK  
(cents/lb.)



## GARLIC

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### Description

- Allium sativum
- perennial but bulbs harvested annually
- volatile oil - allyl propyl disulfide and diallyl disulfide
  - oil yields - .1% of bulb weight

### Sources

- U.S., Egypt, Bulgaria, Hungary and Taiwan are major dehydrated garlic-producing countries
- fresh garlic is produced in the U.S.

### Usage

- garlic is most commonly used by the food industry as a dehydrated spice
- dehydrated garlic is sold as sliced, large chopped, chopped, minced, ground, granulated and powdered product
- whole and minced fresh garlic is used as a condiment as well
- garlic is widely used in a number of foods including sausage, sauces, salad dressings, pickles, chips and Mexican, Italian, Greek, Chinese and Spanish cooking

### Industry Requirements

- the American Dehydrated Onion and Garlic Association publishes an official standards and methods guide to standardize grades and specifications, and quality of dehydrated onion and garlic products in the U.S.; buyers use these official guidelines to purchase products
- white cloves are preferable over yellow cloves in the fresh garlic market

### Supply and Demand

- the U.S. onion and garlic industry is highly vertically integrated with growers processors and dehydrators all connected in four major companies; Basic Vegetable Products, Inc; Gentry Food Corporation; Gilroy Foods Incorporated; and Rogers Foods Division, Universal Foods Corporation all based in California
- varieties have been developed for California with high solids content that requires less energy to dehydrate the product

### Opportunities for Alberta

- high quality, relatively inexpensive product comes out of California making competition from other sources difficult
- dehydrated garlic products have low potential for Alberta - fresh, whole and minced garlic has some potential and market opportunities should be further explored

## HORSERADISH

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### Description

- Amoracia rusticana
- perennial but grown as an annual
- roots are harvested

### Sources

- China, U.S.

### Usage

- grated or minced, and bottled in vinegar (to prevent discoloration) and used as a condiment
- dried and ground forms are commonly sold - called wasabi in Japan
- also eaten as boiled, fresh root
- horseradish peroxidase - an enzyme extracted from the root - is used in biochemical and immunochemical laboratory procedures
- the residue left after enzyme extraction is available for use as a condiment

### Industry Requirements

- large straight roots command highest prices for use as a condiment due to ease of cleaning

### Supply and Demand

- The U.S. produces about 6 million kg. of horseradish annually
- Japan is a major buyer with 29 manufacturers of horseradish products in Japan
- Ontario produces some horseradish
- one source indicated that horseradish is grown in China and bartered to Japan for cars
- a large market exists for horseradish peroxidase - the highly purified enzyme sells for \$600/gram
- dried and canned horseradish sells for up to \$2.50 Cdn./can

### Potential for Alberta

- according to Dr. John Jones of the Food Research Centre in Ottawa, demand and retail value are high enough for the extracted enzyme alone to make production worthwhile - the residue sold as a condiment adds further value to the crop
- horseradish has excellent potential as an Alberta crop and merits further consideration

## MONARDA

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### Description

- Monarda sp
- related to sage and mint
- geraniol, a volatile oil, is produced in all parts of plant, especially in the flowers and leaves
- geraniol has a fruit/rose aroma

### Sources

- an oil rich strain was developed at Morden Research Station in Manitoba
- Monarda is not yet commercially produced although there are some producers experimenting with Monarda production in Alberta

### Usage

- geraniol is used in the flavor and fragrance industries
- Monarda is not currently used as a source for geraniol

### Supply and Demand

- current sources of geraniol include palmarosa grass, geranium oil and synthetic geraniol
- Monarda has the advantages that the plants are more productive than palmarosa grass and the geraniol content is greater in Monarda than in the other sources
- the flavor and fragrance industries have expressed an interest in Monarda as a source of geraniol
- in the Dec. 5, 1988 issue of Chemical Marketing Reporter, natural geraniol (source unknown) had a reported price of \$10.60/lb. (U.S.) while synthetic geraniol was priced at \$3.80 and \$4.30/lb. (U.S.)
- palmarosa oil, a current source of geraniol, had a reported price of \$33.00-\$38.00/kg. which may reflect the geraniol value or the value of some other constituent of the oil

Potential for Alberta

- several producers in Alberta have been experimenting with small acreages of Monarda to refine production techniques
- with industry interest in Monarda and strong prices for geraniol, there is good potential for the crop in Alberta

## MUSTARD

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### Description

- Brassica hirta (yellow mustard)
- Brassica juncea (brown and oriental mustard)
- annual
- volatile oil - Allyl isothiocynate

### Sources

- Canada is the world's major producer; Denmark, U.K. and the U.S. also produce mustard

### Usage

- whole seed is used in pickles, relishes and condiments
- powdered mustard or mustard flour is the finely ground seed heart (with husk or bran removed) and is used in sauces, prepared mustards, salad dressings, poultry, meats, vegetables
- ground mustard is made from the whole ground seed and is used mostly in the sausage industry
- de-heated mustard is a specialty product produced in Alberta that is made of ground mustard further processed to remove the enzyme that makes mustard hot - the product is used as a binder and emulsifier in processed meat products and adds flavor without the heat

### Industry Requirements

- cleanliness
- uniform color - yellow or brown depending on species

## Supply and Demand

- an average of 105,000 tonnes of mustard seed are produced on the prairies annually
- the U.S. imports about one-third of Canada's production at an average of 34,000 tonnes annually
- other buyers include Japan (7,000T), Netherlands (19,000T), Belgium, France, West Germany, Switzerland, U.K. and India
- the U.S. imports 99 percent of their total mustard imports from Canada
- U.S. imports have remained stable over the past 10 years

## Potential for Alberta

- Alberta has a well-established mustard production
- except for the deheated mustard sold out of Alberta, most exports consist of raw seed - further processing should be done in Alberta to add value to the product

## AVAILABILITY OF MUSTARD SEED IN THE U.S.

|        | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Canada |     |     |     |     |     |     |     |     |     |     |     |     |

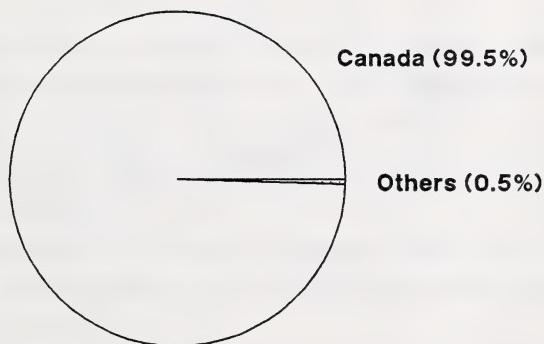


Harvest/Shipment  
from Source

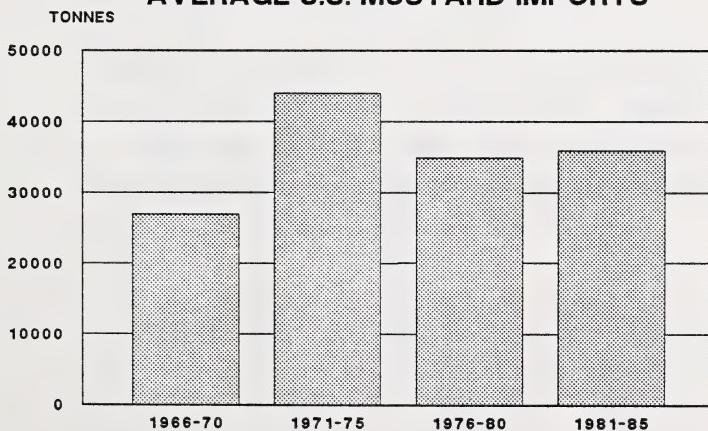


New Crop Generally Available  
in the United States

## PERCENTAGE OF U.S. MUSTARD IMPORTS BY COUNTRY 1981-1985



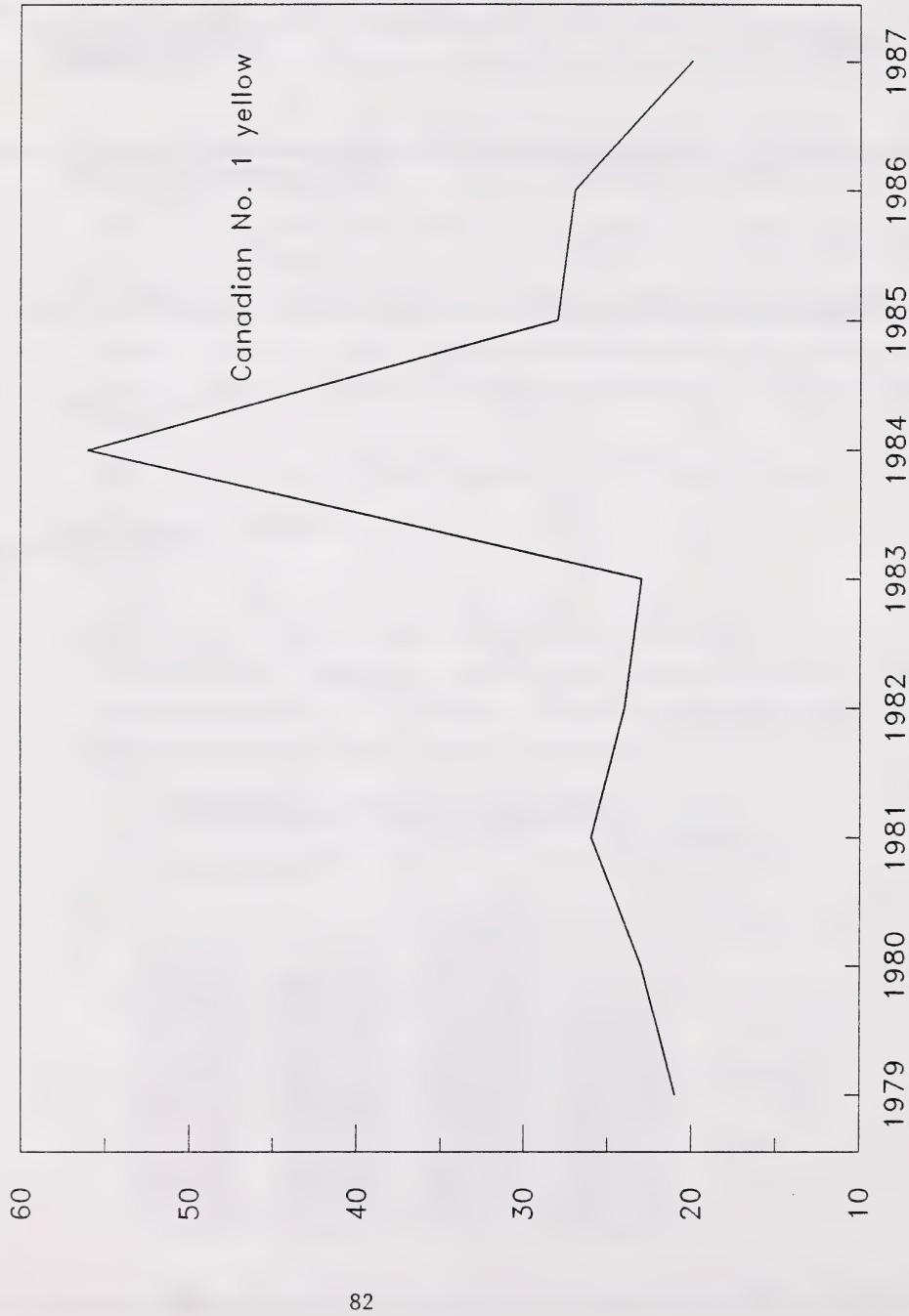
## AVERAGE U.S. MUSTARD IMPORTS



**Sources:** McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR MUSTARD SEED

(cents/lb.)



## OREGANO

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### Description

- Origanum vulgare (Mediterranean) or Lippia graveolens (Mexico)
- volatile oil - Carvacrol
- grows wild in the Mediterranean and is harvested by locals
- perennial

### Sources

- Greece was the traditional source of oregano, however, Turkey now supplies nearly 100 percent of U.S. imports of Mediterranean oregano
- Mexico supplies a different species that is also used as oregano
- Mexican oregano is stronger flavored with about 3-4 percent essential oil compared with 2 percent essential oil in Mediterranean oregano
- Italy produces some oregano but exports little to the U.S.

### Useage

- oregano is used in Italian, Mexican and Spanish cooking, tomato dishes, barbecue sauce, soups, egg and cheese dishes, stuffings and on pork, lamb, chicken and fish
- leaves are used whole or ground and oleoresin is extracted and used

## Industry Requirements

- clean product, specific leaf sizes often requested
- light to dark green leaves
- industry has adapted to the change in source of oregano from Greece to Turkey with the subsequent flavor differences
- buyers often request a specific source

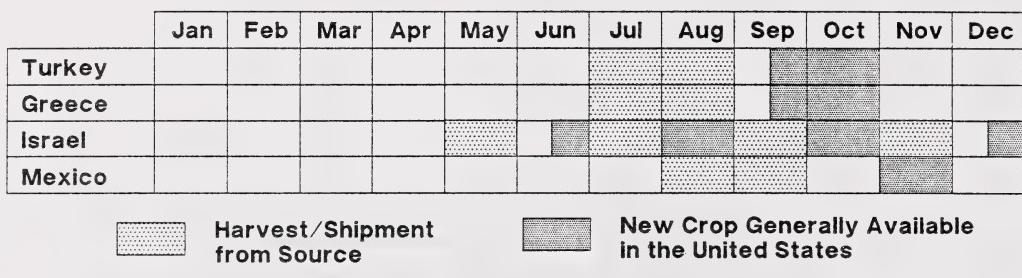
## Supply and Demand

- imports from the Mediterranean and Mexico are roughly equal
- imports have been steadily increasing as demand for Italian and other ethnic foods increases; between 1984 and 1987 U.S. imports averaged over 4500 tonnes annually, up from an average of 1000 tonnes between 1964 and 1967
- Greek oregano commands the highest prices followed by Turkish then Mexican oregano
- prices jumped considerably between 1986 and 1987 to nearly \$3.00/lb. (U.S.) due to the Chernobyl accident that restricted supplies (Mexican oregano prices remained steady)
- recent prices on the New York spot market show Greek oregano at \$1.35/lb. (U.S.); Turkish product at \$1.10/lb. (U.S.); and Mexican oregano at \$0.85/lb. (U.S.)
- the extracted product is sold as origanum oil which was priced at \$35/kg (U.S.) on December 5, 1988

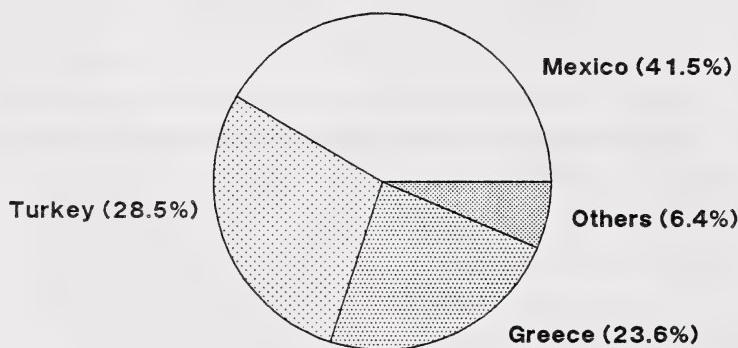
#### Potential for Alberta

- low wage rates in Turkey and negligible production costs of growing oregano which grows wild, limit the ability of Alberta to become a competitive producer
- opportunities possibly exist to produce a premium quality product at higher prices however since the trade switched to a cheaper source, buyers may not be amenable to a higher priced product
- demand is still increasing and prices are favorable thus there may eventually be some potential for Alberta production of oregano

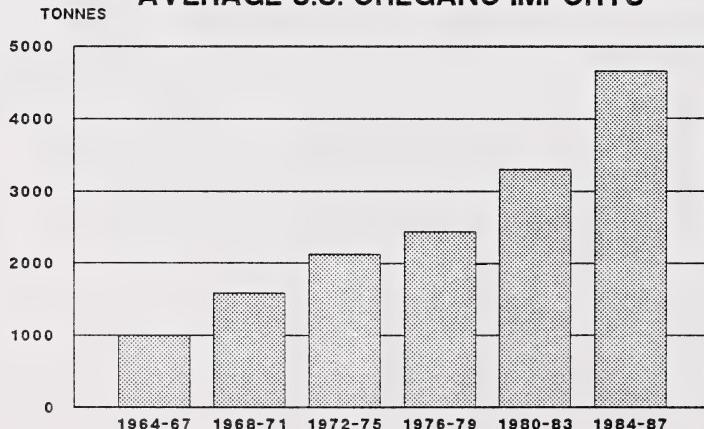
## AVAILABILITY OF OREGANO IN THE U.S.



## PERCENTAGE OF U.S. OREGANO IMPORTS BY COUNTRY 1981-1985



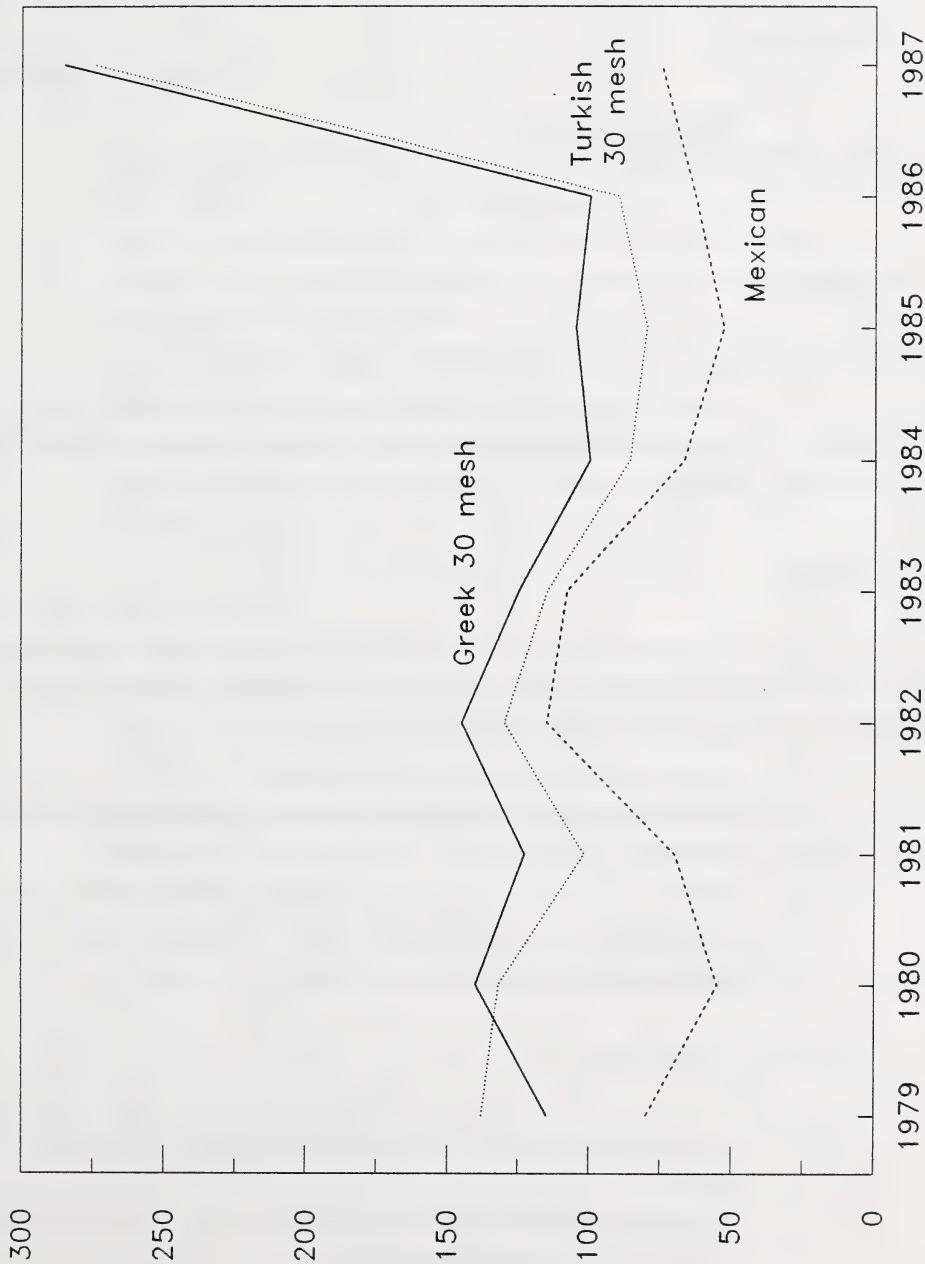
## AVERAGE U.S. OREGANO IMPORTS



**Sources:** McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR ORIGANUM

(cents/lb.)



## PEPPERMINT

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### Description

- Mentha piperita
- perennial
- 0.3 - 0.7% essential oil

### Sources

- the U.S. is the world's largest producer
- other producers include France, south-western Europe, Eastern Europe including the Soviet Union, Morocco, India, Brazil and Argentina

### Usage

- peppermint oil is used mostly for flavorings including toothpaste, dental cremes, mouthwash, cough candies, chewing gum and confectionary goods
- small amounts are used in perfumes
- cooling effect of the mint makes it useful for face creams and lipstick
- NOTE: another species, M. arvensis or Japanese mint, is the primary source of menthol used to flavor tobacco, toothpaste, gum and other products

### Industry Requirements

- true peppermint oil is unique in quality and flavor among mint oils
- synthetic substitutes are available but are not equal in quality to natural peppermint oil

## Supply and Demand

- total world production of peppermint oil is between 1800 and 2200 tonnes
- the U.S. produces over 75 percent of the world total
- the U.S. is a major consumer but is also the major exporter of peppermint oil in the world
- world trade is increasing slowly and is currently at about 900-1000 tonnes annually
- peppermint leaves were prices at \$1.90/lb. (U.S.) on the New York spot market on February 6, 1989; oil was priced at about \$27.00/lb (U.S.)

## Opportunities for Alberta

- synthetic mint flavors have decreased the demand for natural mint oil although demand is still high enough for new producers to enter the market
- peppermint is not as well-adapted to Alberta growing conditions as spearmint and requires longer day lengths during the growing season
- competition with U.S. production of peppermint may be difficult to overcome in terms of market penetration

## POPPY

---

### Description

- Papaver somniferum
- annual

### Sources

- Netherlands, Australia, Romania, Turkey, Poland
- Dutch seed is the best quality

### Useage

- seed used in baking products, salad dressings, fruit dishes
- poppy seed paste used in some bakery products

### Industry Requirements

- uniform slate blue seed color most desirable
- seed used mostly whole thus cleanliness is crucial
- nut-like flavor

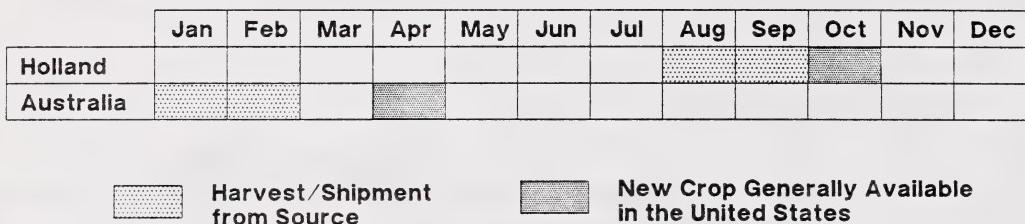
### Supply and Demand

- the species used for seed is the same one from which opium is derived - production is controlled on a world scale
- a licence from Health and Welfare Canada is required to grow poppies with strict regulations regarding crop security
- U.S. imports 40% of supplies from the Netherlands, 30% from Australia, 23% from Turkey and 8% from elsewhere
- U.S. poppy seed imports averaged just over 4000 tonnes annually between 1984 and 1987
- prices have been volatile over the past 10 years and are currently about 70¢/lb. (U.S.)

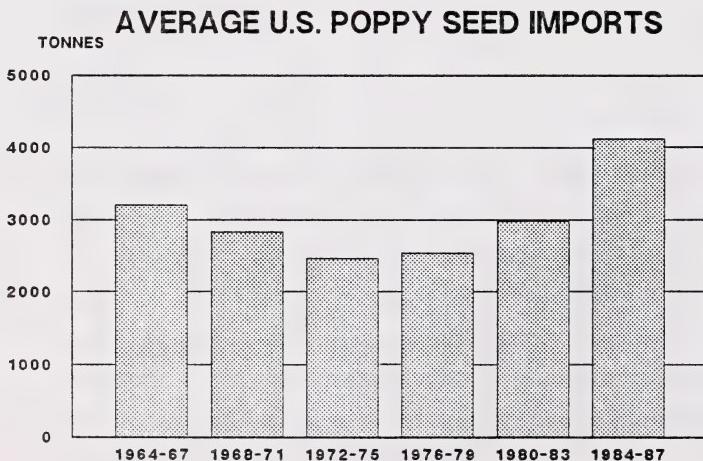
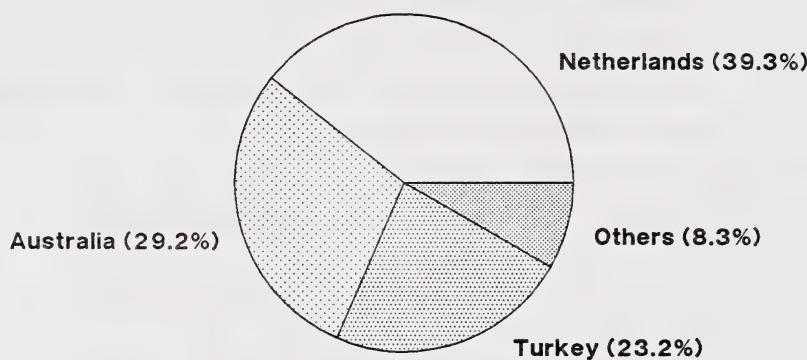
### Potential for Alberta

- there is a potential \$1 million market in the U.S. for poppy seed assuming a 25 percent market penetration
- quality of seed is set by Dutch standards and these would have to be met to penetrate the U.S. and Canadian markets
- licensing requirements for growing Papaver somniferum could be a barrier to commercial production of poppy seed - other species exist that do not produce compounds capable of being processed to opium; production potential of these other species should be explored.

## AVAILABILITY OF POPPY SEED IN THE U.S.



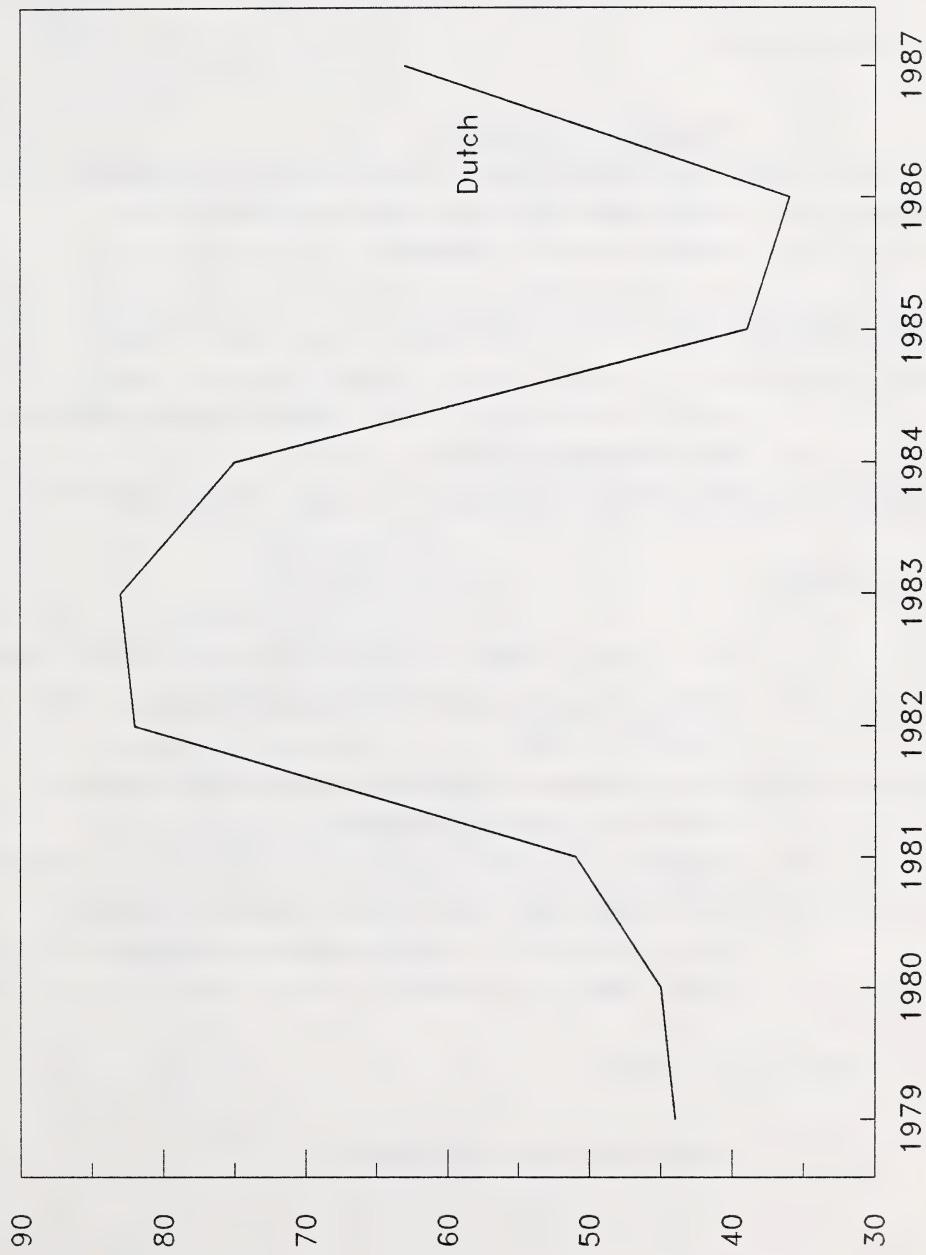
## PERCENTAGE OF U.S. POPPY SEED IMPORTS BY COUNTRY 1981-1985



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR POPPY SEED

(cents/lb.)



## ROSEMARY

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### Description

- Rosmarinus officinalis
- tender perennial, will not overwinter in Alberta
- small evergreen shrub related to mint
- volatile oil - 1,8-Cineole

### Sources

- major producers are France, Spain, Portugal, Tunisia, Yugoslavia and Albania
- Yugoslavian rosemary has the highest volatile oil content

### Usage

- as a spice, whole or ground, rosemary leaves commonly used with lamb, soups and stews and other meat dishes as well as vegetable dishes
- oil of rosemary (distilled essential oil) is used in cosmetics, soaps and perfumes
- essential oils and oleoresins of rosemary are a powerful antioxidant used in food processing and preparation
- as an antioxidant, rosemary extract can be used in dried foods such as breakfast cereals, and in other moist foods

### Industry Requirements

- light green color in leaves

## Supply and Demand

- imports to the U.S. were steady at 200-300 tonnes between the mid 1960s and mid 1980s. In the past several years, imports have increased to an average of close to 1000 tonnes per year
- prices have fluctuated between \$0.35-\$0.50/lb. (U.S.) over the past 8 years and are currently at the high end of the range
- Quest produces rosemary oil for use as an antioxidant to add to cooking oils
- New York Spot market quotes for December 5, 1988 were \$14.00/kg for Spanish rosemary oil and \$78.00/kg for Tunisian oil

## Potential for Alberta

- production potential is limited since the plants won't overwinter in Alberta
- some brokers suggested that rosemary is a growth area with good potential for increasing use
- if overwintering problems could be overcome there would be some potential for the crop, especially for extracted oils to be used as an antioxidant

## AVAILABILITY OF ROSEMARY IN THE U.S.

|             | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Yugoslavia  |     |     |     |     |     | ■   | ■   |     |     |     |     |     |
| France      |     |     |     |     |     |     |     | ■   | ■   |     |     |     |
| Spain/Port. |     |     |     |     |     | ■   | ■   | ■   | ■   | ■   |     |     |

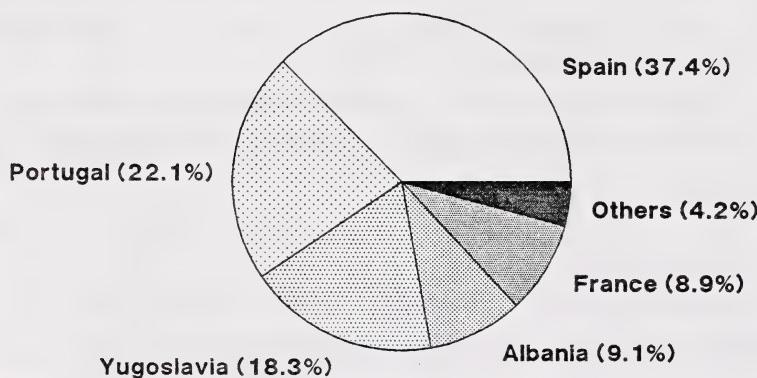


Harvest/Shipment  
from Source

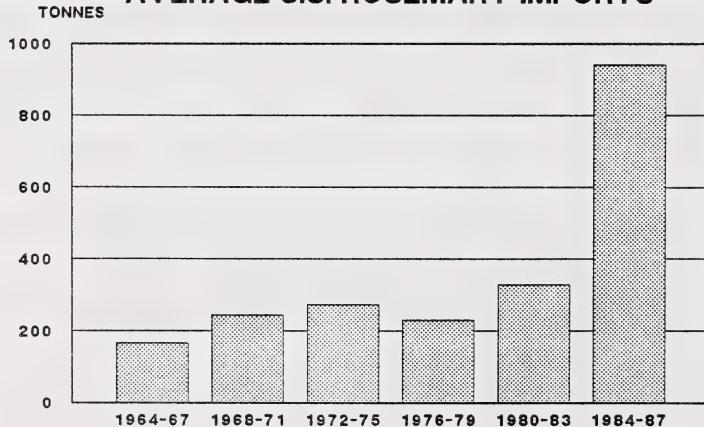


New Crop Generally Available  
in the United States

## PERCENTAGE OF U.S. ROSEMARY IMPORTS BY COUNTRY 1981-1985

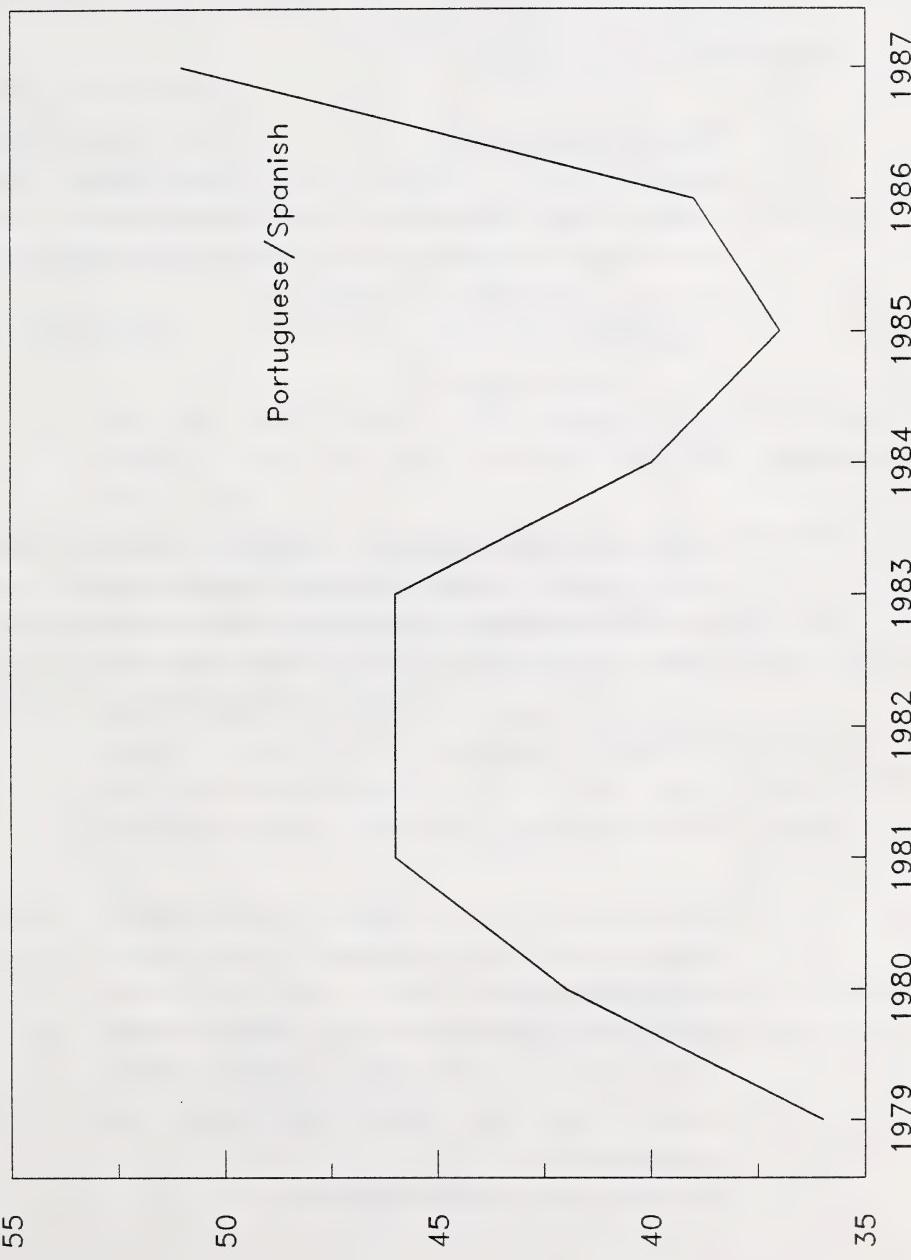


## AVERAGE U.S. ROSEMARY IMPORTS



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

APPROXIMATE NEW YORK SPOT PRICES FOR ROSEMARY  
(cents/lb.)



Description

- Salvia officinalis Clary sage (S. sclarea) have
- perennial herb large leaves and different
- volatile oil - Thujone essential oil constituents
- wide range of varieties exist than (S. officinalis)  
that are difficult to distinguish  
botanically
- 0.7 - 1.5% essential oil

Sources

- best quality sage grows in Yugoslavia (Dalmatian sage)
- also Turkey, Greece, Albania, Israel, France and the U.S.
- the wide variation in types as well as differences in growing conditions has made commercial production of sage with qualities similar to those of Dalmatian sage difficult in the U.S. and in Canada

Usage

- largest use is in the making of pork sausage
- Quest extracts sage oleoresin for use mainly in the meat packing industry
- large use in poultry stuffing, tomato dishes, soups, pork, beef and fish dishes, vegetable dishes
- sage is sold cut, rubbed (fine powder) and as oleoresin and essential oil
- has some antioxidant properties

### **Industry Requirements**

- silvery gray color, clean
- Dalmatian sage is industry standard with its unique essential oil constituents

### **Supply and Demand**

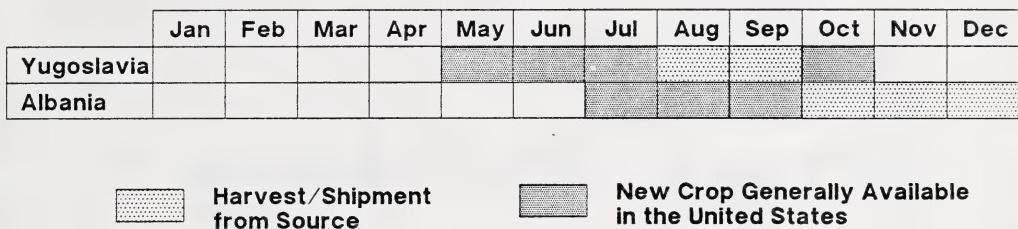
- most sage used in the U.S. is Dalmatian sage from Yugoslavia
- imports to the U.S. have averaged over 2000 tonnes between 1984 and 1987
- Dalmatian sage is currently priced at about \$2.15/lb. (U.S.) on the New York spot market
- Albanian sage is priced as much as \$0.70/lb. lower than Dalmatian sage and was recently priced at \$1.90/lb. (U.S.) on the New York spot market
- Dalmatian sage oil was quoted at \$27.00/lb. on the New York spot market on December 5, 1988; Clary sage oil was quoted at \$200.00/kg or over \$90.00/lb. at the same time

### **Potential for Alberta**

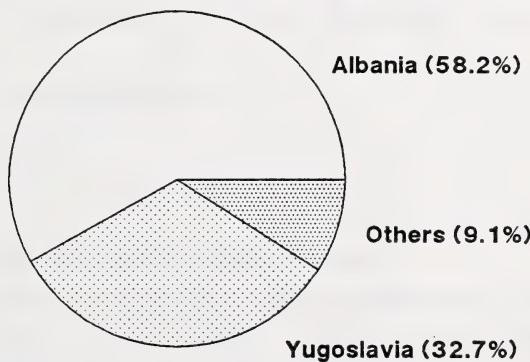
- prices have been strong for sage over the past decade and imports to the U.S. have been high making sage attractive as a commercial crop

- however, the high variability in the plants and the failure of U.S. producers to grow sage of equal quality to imported Dalmatian sage have discouraged domestic production
- a great deal of agronomic research on sage will be required to produce a product acceptable to the industry
- the high price of clary sage oil would indicate good potential for Alberta production of clary sage

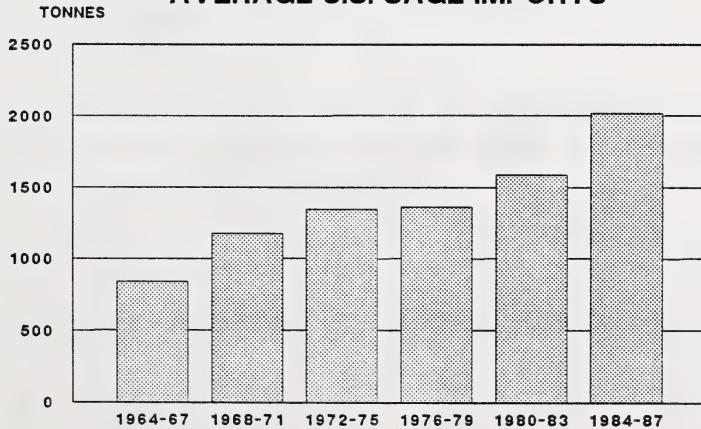
## AVAILABILITY OF SAGE IN THE U.S.



## PERCENTAGE OF U.S. SAGE IMPORTS BY COUNTRY 1981-1985



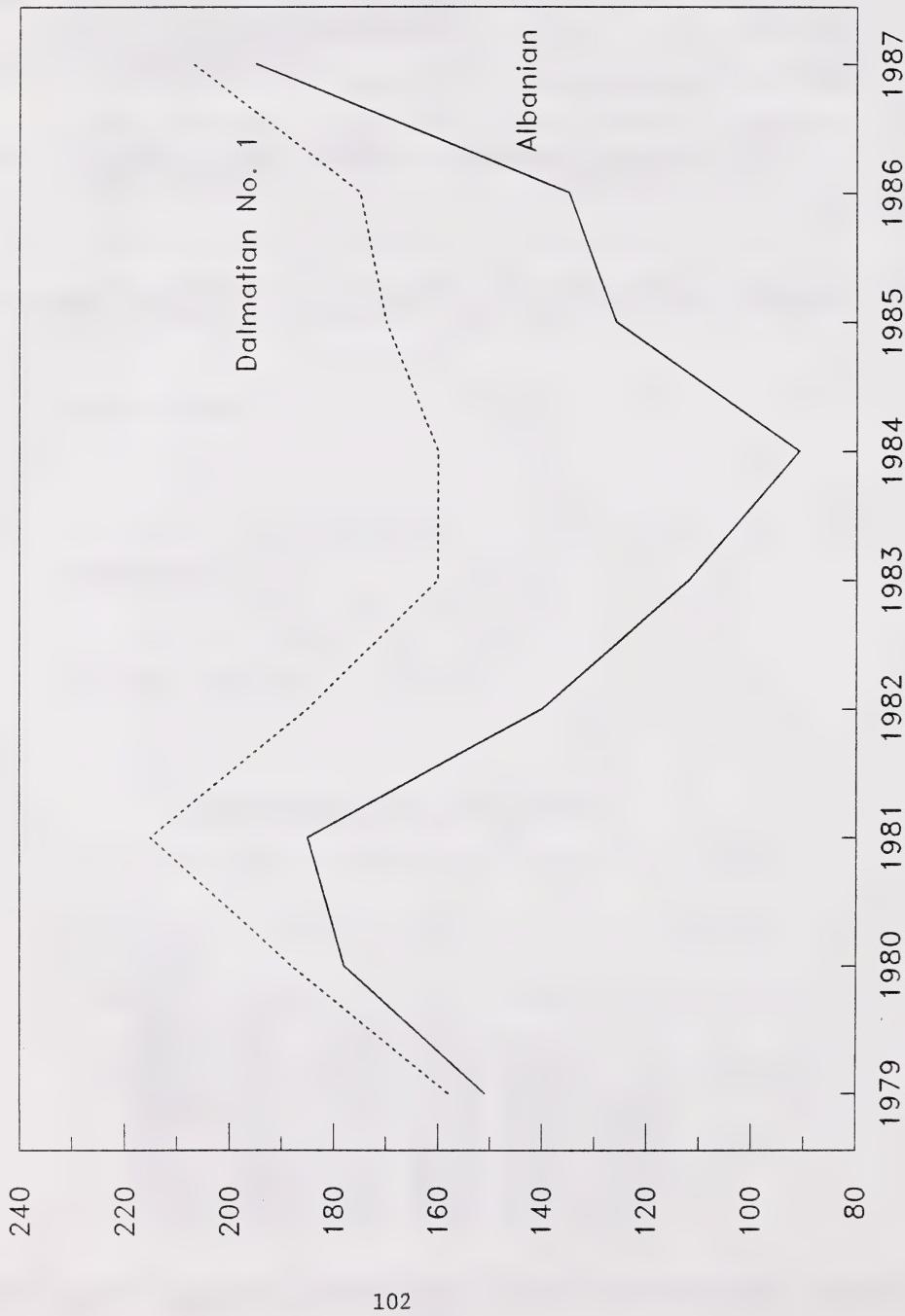
## AVERAGE U.S. SAGE IMPORTS



**Sources:** McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR SAGE

(cents/lb.)



## **SPEARMINT**

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### Description

- Mentha spicata (native spearmint); M. cardiaca (Scotch spearmint)
- perennial

### Sources

- the U.S. is the major producer especially Washington, Oregon and Idaho
- China is a recent producer

### Usage

- leafy tops of the plants are harvested
- spearmint oil is used to flavor toothpaste and chewing gum
- leaves are used whole, rubbed, pulverized or flaked
- as a condiment, mint is used with lamb, in salads, teas, desserts and vinegars

### Industry Requirements

- Scotch spearmint produces a better quality oil while native spearmint is harder and has higher oil yields - the industry prefers Scotch spearmint

## Supply and Demand

- Washington, Oregon and Idaho produced 1046 kgs. of spearmint oil in 1987
- U.S. imports of spearmint oil averaged about 33,000 kgs. in the early 1980's - imports appear to be decreasing as U.S. domestic production of spearmint strengthens
- data on world production are limited, however, production is estimated to be over 900 tonnes per year with about half of that traded in world markets
- the E.C. is the largest importer of spearmint oil
- synthetic substitutes for spearmint oil are less favored than substitutes for other mint oils therefore trade levels have remained steady
- prices for spearmint leaves have remained at over \$1.50/lb.(Can.) and reached over \$2.00/lb (Can.) until about 1986
- February, 1988, New York spot market prices for spearmint leaves were above \$2.50/lb. (U.S.) and oil prices were reported at \$15.00/lb. (U.S.) for Scotch spearmint oil and \$10.50/lb. (U.S.) for native spearmint oil

## SUMMER SAVORY

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### Description

- Satureja hortensis
- annual
- volatile oil - Carvacrol

### Sources

- France, Yugoslavia and Albania are major producers with Yugoslavia producing premium quality savory
- some savory for the fresh herb market is grown in Newfoundland and New Brunswick

### Usage

- popular in bean dishes, meat, eggs, soups
- flowering plants are harvested - leaves and flowers used whole fresh and dried, and ground to various specifications

### Industry Requirements

- clean from stems, chaff, and foreign material
- brownish green leaves

### Supply and Demand

- annual U.S. imports averaged just over 100 tonnes between 1984 and 1987
- prices have fallen from \$1.50/lb. (U.S.) in 1979 to current prices of about \$0.80/lb. (U.S.)

Potential for Alberta

- niche markets in Canada and the U.S. could allow for small acreages of summer savory
- neither demand nor prices are high enough to encourage large scale production

## AVAILABILITY OF SAVORY IN THE U.S.

|            | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Yugoslavia |     |     |     |     |     |     | ■   | ■   |     |     |     |     |
| France     |     |     |     |     |     |     |     | ■   | ■   | ■   | ■   |     |

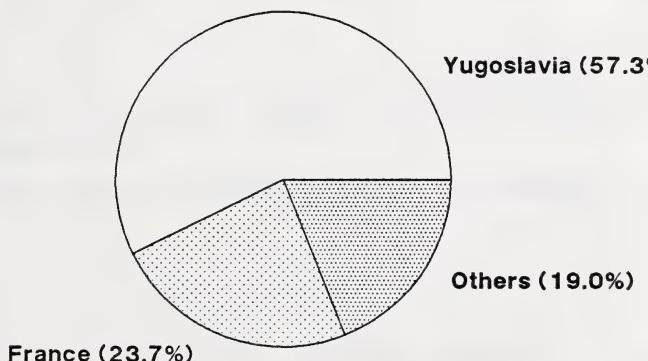


Harvest/Shipment  
from Source

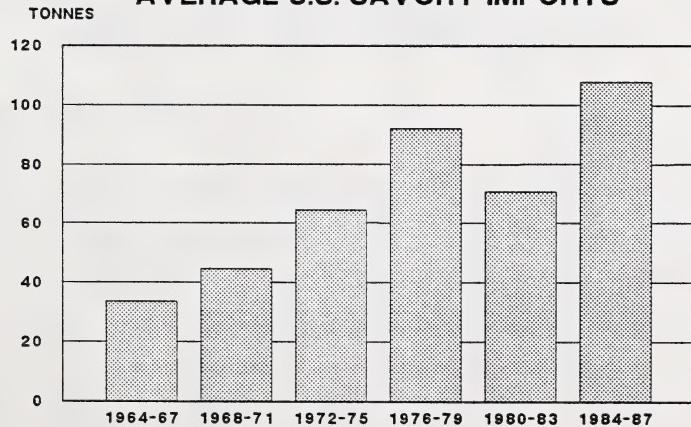


New Crop Generally Available  
in the United States

## PERCENTAGE OF U.S. SAVORY IMPORTS BY COUNTRY 1981-1985



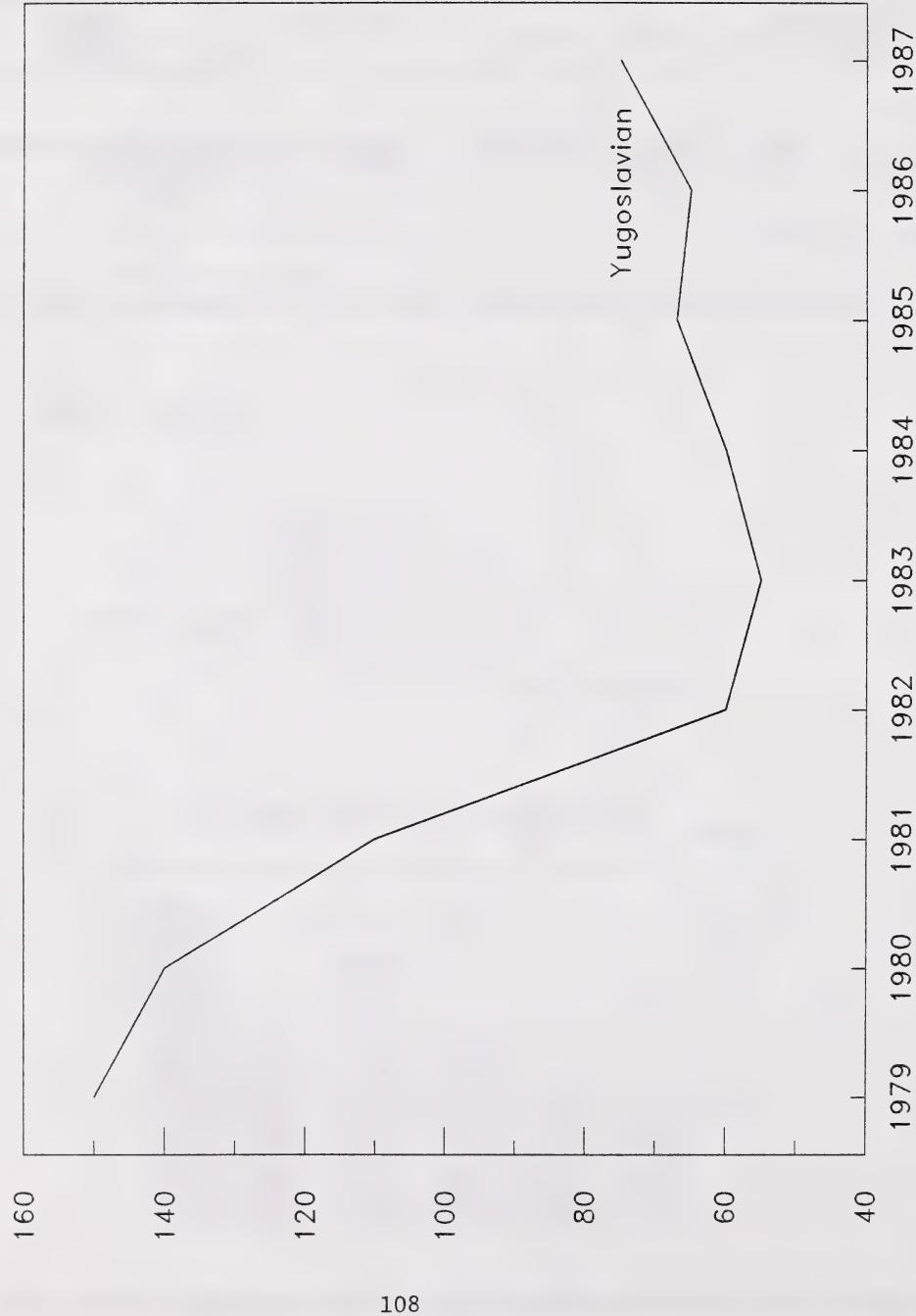
## AVERAGE U.S. SAVORY IMPORTS



**Sources:** McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR SAVORY

(cents/lb.)



## TARRAGON

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### Description

- Artemesia dracunculus
- volatile oil - Methyl chavicol
- hardy perennial
- anise-like flavor in leaves
- 0.3 - 1.4% essential oil

### Sources

- France is the major source; California produces tarragon commercially
- Mexico, Spain, the Soviet Union, and Yugoslavia

### Usage

- leaves are used whole or ground, oleoresin and essential oils are extracted
- used in tartar sauce, fish dishes, marinades, soups, casseroles and in poultry dishes
- important part of Bearnaise sauce and part of Tarragon vinegar

### Industry Requirements

- clean product, deep green color
- French type preferred over other European sources
- California tarragon is more uniform in color and is cleaner

### Supply and Demand

- use has been limited due to the prohibitive price of tarragon
  - prices quoted by an Eastern broker ranged between \$4-12/lb.
  - U.S.
- U.S. imports averaged only about 44 tonnes annually between 1981 and 1985
- speculation from the industry was that demand would increase with lower prices
- over 75 percent of imports are from France

### Potential for Alberta

- tarragon is well-adapted to parts of Alberta
- the high price makes production appear attractive however demand is low
- there is good potential for Alberta production of tarragon at strong prices provided aggressive marketing takes place to help improve demand for the product

## AVAILABILITY OF TARRAGON IN THE U.S.

|        | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| France |     |     |     |     |     |     |     |     |     |     |     |     |
| U.S.   |     |     |     |     |     |     |     |     |     |     |     |     |

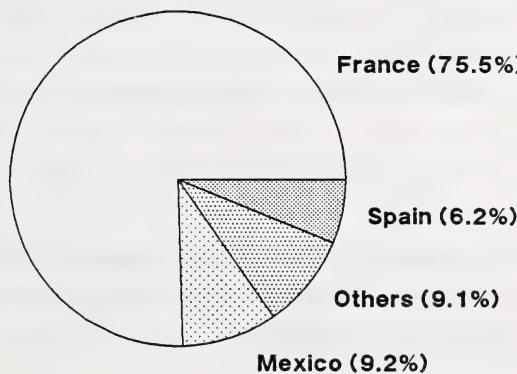


Harvest/Shipment  
from Source



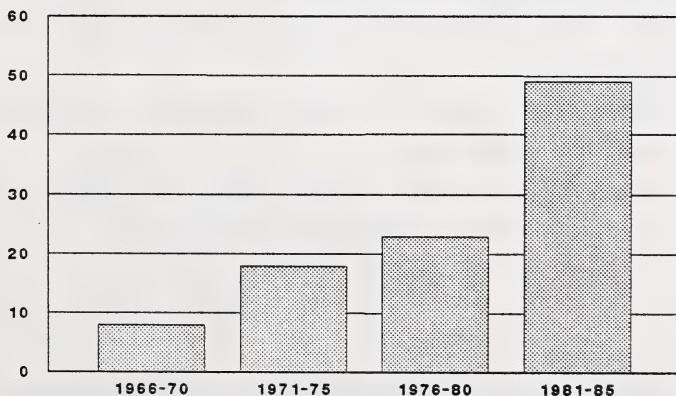
New Crop Generally Available  
in the United States

## PERCENTAGE OF U.S. TARRAGON IMPORTS BY COUNTRY 1981-1985



## AVERAGE U.S. TARRAGON IMPORTS

TONNES



**Sources:** McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

## THYME

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### Description

- Thymus vulgaris
- perennial member of the mint family
- volatile oil - Thymol
- 0.5 - 1.2% essential oil

### Sources

- until the mid-1970's France supplied 30-50 percent of the world's thyme
- French thyme has higher quality and higher prices than Spanish thyme but is grown only in limited quantity
- France's share has fallen to 10% and Spain is now the largest supplier
- 3 seasonal types of T. vulgaris are harvested in Spain: Winter (Feb.-Mar.); Gray (Apr.-May); and Red (May-June).
- California produces a French type of thyme commercially

### Usage

- thyme is used whole or ground
- gray thyme is preferred in the spice trade as whole or ground spice
- Spanish red thyme is used primarily for essential oil and oleoresin extraction
- commonly used with poultry and fish dishes, clam chowder, tomato and cheese dishes, and vegetables

### Industry Requirements

- high oil content required for extraction purposes
- very clean spice needed, especially for spice sold whole and ground
- uniform grayish-green in color

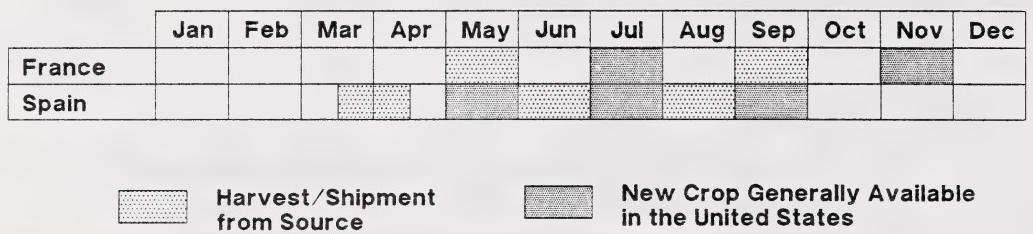
### **Supply and Demand**

- U.S. imported an average of nearly 1000 tonnes annually between 1984-87
- U.S. imports are rising and have doubled in the last 10 years
- Spain supplies over 90% of U.S. imports
- prices fell during the first half of the 1980's and are currently increasing - French thyme averaged \$1.50/lb. (U.S.) in 1987 while Spanish thyme averaged \$0.80/lb.(U.S.) in 1987
- thyme oil was priced at \$60/kg. U.S. (\$27/lb.) on the New York Spot Market in early December, 1988

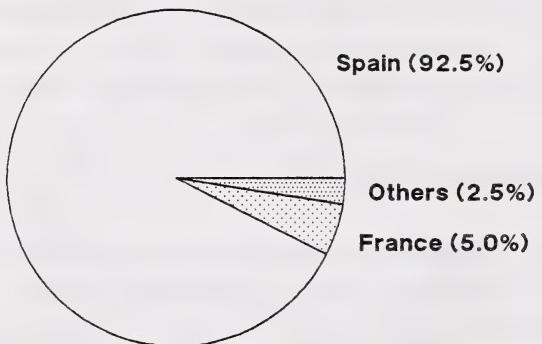
### **Potential for Alberta**

- demand and prices indicate a good potential for thyme; at a Canadian market penetration of 25%, thyme would be worth \$117,205 (Cdn); a market penetration of 25% into the U.S. market would give a potential value of \$586,000 (Cdn.)
- a major disadvantage is the very low growth habit of thyme making mechanical harvesting difficult - until this agronomic problem is solved through breeding, thyme production has a low potential for Alberta

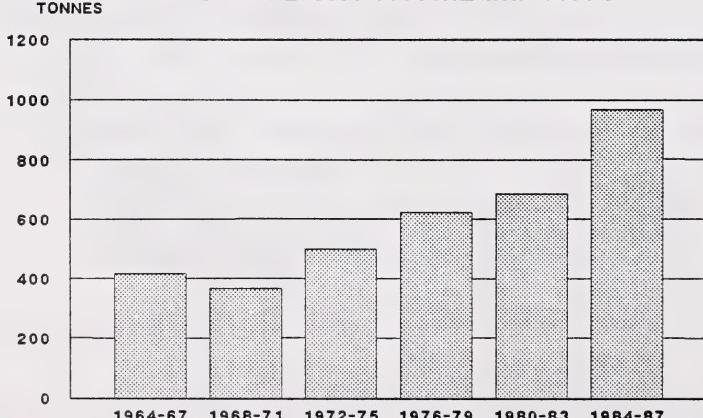
## AVAILABILITY OF THYME IN THE U.S.



## PERCENTAGE OF U.S. THYME IMPORTS BY COUNTRY 1981-1985



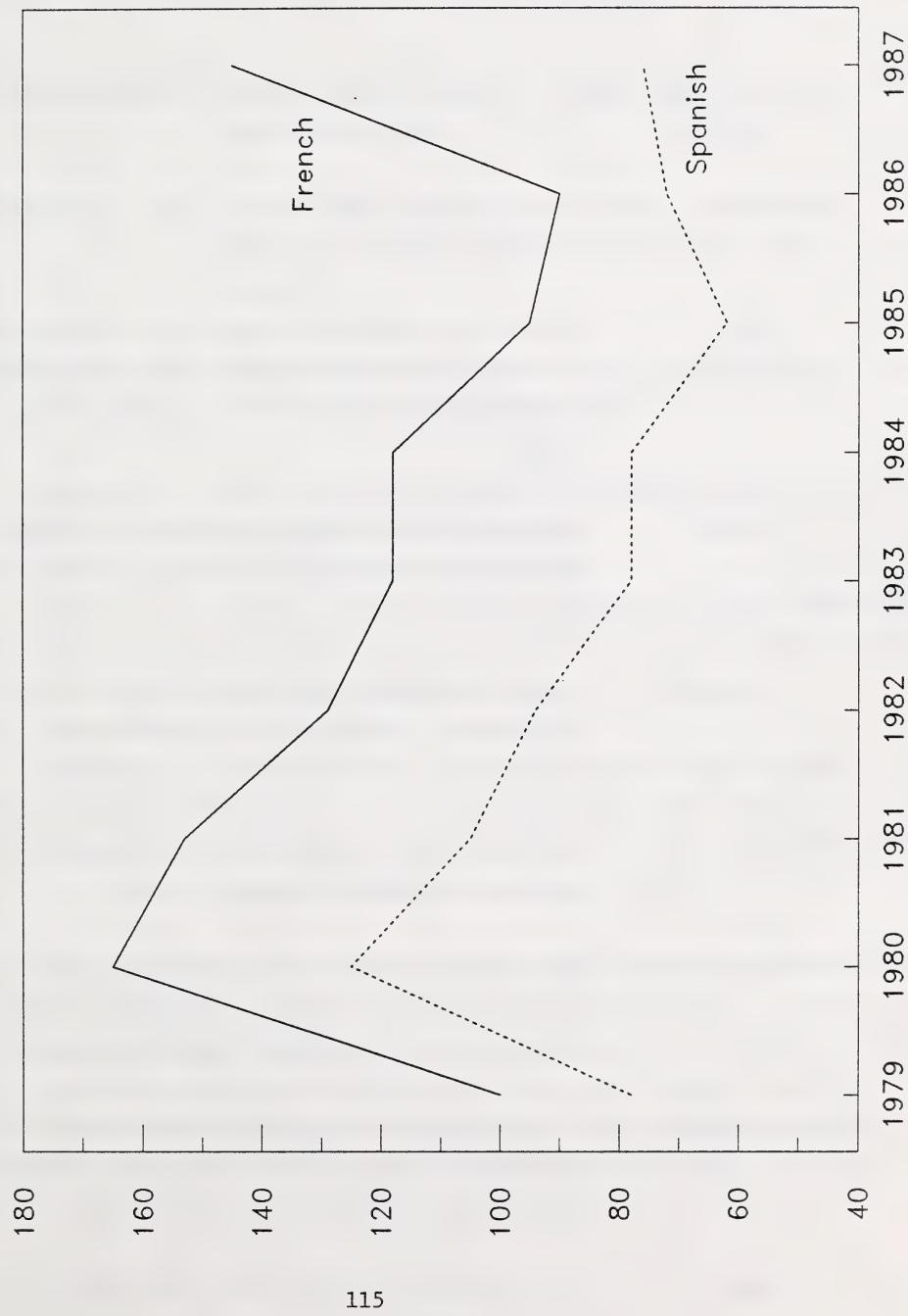
## AVERAGE U.S. THYME IMPORTS



Sources: McCormick Ingredients product brochures, USDA, FAS Circular, FTEA Spices

# APPROXIMATE NEW YORK SPOT PRICES FOR THYME

(cents/lb.)



## SUMMARY OF SPICE PROFILES

Individual spices with good potential for Alberta production are as follows:

- Anise - the industry needs clean seed and shorter season types are needed for Alberta
- Basil - California produces a great deal of basil but prices are very high; the industry needs very clean, reasonably priced product; a growth area in terms of demand
- Caraway - commercial production is underway in Alberta; aggressive marketing is needed to compete with Dutch caraway
- Coriander - a growth area for both seed and fresh herb (cilantro); production is established in Alberta
- Dill seed and herb - the herb is high priced with a small market and could be a valuable specialty market item; whole seed and extract have a good market
- Fennel - some potential for limited production in Alberta; imports are increasing with growing demand for seed and extracts; very clean product is required
- Fenugreek - a growth area for ground product in curry and as an artificial maple flavor in food industry; early, determinant varieties are required
- Garlic - some potential for oil and fresh garlic

- Horseradish - large potential for condiment and for horseradish peroxidase enzyme
- Mustard - production is well-established in Alberta; more value-added processing should be encouraged in Alberta
- Poppy - problems with licensing for production but good potential for high quality seed
- Rosemary - potential as a natural antioxidant and as a spice but difficult to grow
- Sage - good potential for oleoresins in meat processing industry and good prices; agronomic problems will need to be overcome
- Spearmint - good agronomic potential and reasonable prices
- Tarragon - very high priced spice; with more reasonable prices demand could be expected to increase
- Niche markets may be available for other spices as noted in the spice profiles. These niches could include the U.S. Canada has a reputation for quality and if high quality, reliable Canadian sources for some spices were available, the industry could be very interested. Industry representatives have already expressed an interest in domestic sources and opportunities exist for Alberta to become one of those sources.

## OPPORTUNITIES FOR ALBERTA

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This report presents information on the Canadian and world spice industries. From this collection of data and industry views, opportunities and directions for Alberta can be identified. These are categorized, in this summary, by stages; a development stage and a production stage. Opportunities and recommendations that could enable Alberta to become a significant player in the spice business are described as follows:

Development Stage: The spice industry in Alberta is still in its infancy with agronomic research and initial field trials, in a number of crops, being carried out. This report is part of the development/learning stage. Opportunities during this stage are as follows:

- Research in the development of shorter season spice crops with higher oil contents to make them comparable to current sources is critical. It must be recognized that current research support is inadequate to develop a meaningful spice production industry. This situation must be changed if Alberta is serious about developing a spice industry. Testing of Alberta spice samples by eastern brokers and millers should be undertaken to more clearly determine our research needs.
- Membership in the American Spice Trade Association and in the Canadian Spice Association could be valuable in terms of market information, and development and maintainance of industry contacts.
- One broker suggested that Alberta look at herbs priced at over \$1.00/lb. for successful production. Alberta needs to be selective in what is grown and capture the most benefit from a few high value spices adapted to Alberta growing conditions and farming practises.

- ° Although there has been some interest shown in producing onion and garlic in Alberta, the California industry is so integrated and highly developed that there would be little use for Alberta trying to compete with California with our shorter cooler season. There may be some opportunity to grow garlic and market both a fresh product and garlic oil, a different product than dehydrated garlic.

Production Stage: When field scale production of spice crops becomes possible, several opportunities and recommendations for marketing and further development should be considered. These include the following:

- ° The need for well-cleaned, high quality spices was stressed by many members of the spice industry. Alberta must adhere to strict quality standards in production and processing if we are to become a significant supplier in the industry. Ground and extracted spices are in demand and opportunities exist for value-added processing in the province. Premium prices may be available for premium quality products.
- ° Brokers and millers are not interested in dealing with individual growers for the most part. To facilitate communication and co-operation between growers and the spice trade an organization of growers and perhaps processors would be useful. A central processing facility that would clean and further process spices as necessary would help to ensure consistency in quantity and quality of Alberta spices. Brokers could deal with essentially one supplier and be assured of product specifications.

- Consistent supply of product is essential to entice buyers to give some priority to Alberta supplies. To avoid the problem in Alberta of a relatively short growing season, a suggestion was made that Alberta import raw herbs to supplement provincial production, and process and sell the blended high quality product, thus extending the season and stabilizing supplies from Alberta. France currently imports cheap raw spices from other countries and cleans, upgrades, and resells them as French spices which command good prices on the world market. This option should be strongly considered in view of customer concerns that steady supplies from a particular source are important to avoid the need to constantly adjust recipes for blends.
- There were some suggestions that a dehydration facility in Alberta would be useful. Horseradish as well as other vegetables could be dehydrated and sold at premium prices. Caution was advised by one broker who was skeptical about dehydration facilities in Canada. Several provinces including Quebec, P.E.I. and now B.C. have tried or are trying to set up dehydration facilities with little success. Other industry people felt that a dehydration facility could provide opportunities for value-added processing in the province. This is an area that should be explored further.
- The fresh herb market has some limited possibilities within Alberta and perhaps Western Canada. Transportation costs must be considered and these could be a problem when marketing high moisture fresh herbs.

- The value-added possibilities from domestic herb and spice production are significant and should be seriously pursued. Technology is not yet fully developed to take maximum advantage of apparent opportunities, but Alberta seems to have a lead in such technology. It is distinctly possible that Alberta could become international leaders in this industry if we were to exhibit the correct blend of thoughtful market development, and aggressiveness in technological development and production research.

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APPENDIX

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Reckitt & Colman Canada Inc.  
2275 - 52nd Avenue  
Lachine, Quebec  
H8T 2Y8

Mr. B. P. Royle  
Thomas J. Lipton Inc.  
P.O. Box 967  
Belleville, Ontario  
K8N 5B6

Mr. D. Ramage  
Empire Spice Mills  
908 William Avenue  
Winnipeg, Manitoba  
R3E 0Z8

Mr. B. A. Moyle  
Schwartz Inc.  
1590 O'Connor Drive  
Toronto, Ontario  
M4B 2V4

Ms. V. Smith  
Thomas J. Lipton Inc.  
Box 967  
Belleville, Ontario  
K8N 5B6

Mr. Ken McKim  
Club House Foods Inc.  
Box 5788  
London, Ontario  
N6A 4Z2

Mr. R. Deslongchamps  
Reckitt & Colman Canada Ltd.  
2275 - 52nd Avenue  
Lachine, Quebec  
H8T 2Y8

Mr. Amir Virani & Mr. N. Virani  
Johnsons J B Coffee  
7951-D Alderbridge Way  
Richmond, B.C.  
V6X 2A4

Mr. Tom Langdon  
G.S. Dunn & Co. Ltd.  
80 Park St. N.  
Hamilton, Ontario  
L8R 2M9

Mr. D. G. Rector  
Rector Foods Ltd.  
2299 Drew Rd., Unit #18  
Mississauga, Ontario  
L5S 1A3

Mr. C.G.T. Hindley  
Thomas J. Lipton Inc.  
160 Bloor St. E  
Toronto, Ontario  
M4W 3R2

Mr. T. Kahn  
Foodpro National Inc.  
2610 J.B. Deschamps Blvd.  
Lachine, Quebec  
H8T 1C9

Mr. Wilbur Scrannage  
Schwartz Inc.  
1590 O'Connor Drive  
Toronto, Ontario  
M4B 2V4

Mr. Frank Hollingworth  
Givaudan Ltd.  
4131 Sherboooke St. W.  
Montreal, Quebec  
H3Z 1B7

Shashi Shah  
Shah Trading Co. Ltd.  
225 Nugget Ave., Unit #12  
Scarborough, Ontario  
M1S 3L2

Mr. Peter Lubbe  
Jan. K. Overweel Ltd.  
56 Aberfoyle Cres, Suite 606  
Toronto, Ontario  
M8X 2X1

Mr. T. F. Burns  
American Spice Trade Assn. Inc.  
580 Sylvan Avenue  
Englewood Cliffs, N.J.  
U.S.A. 07632

Mr. J. d'Hondt  
Thomas Large & Singer Ltd.  
40 Emblem Court  
Agincourt, Ontario  
M1A 1B1

Mr. R. P. Singer  
Thomas, Large & Singer Inc.  
40 Emblem Court  
Agincourt, Ontario  
M1A 1B1

Mr. Benson Fekula  
United Grain Growers Ltd.  
P.O. Box 6600  
Winnipeg, Manitoba  
R3C 3A7

Mr. David Soknacki  
Ecom Trading Corporation  
19 Passmore Ave. #26  
Scarborough, Ontario  
M1V 4T5

Ms. M. J. Chalmers  
Thomas J. Lipton Inc.  
Box 967  
Belleville, Ontario  
K8N 5B6

Mr. Frank Dobson  
Acana Mercantile Inc.  
208 Dundas St. E., Ste. 204  
Belleville, Ontario  
K8N 1C4

Mr. Ray Lalonde  
Powell Torma Sales Ltd.  
93 Judge Road  
Toronto, Ontario  
M8Z 5B3

Mr. Tim Powell  
Powell Torma Sales Ltd.  
93 Judge Road  
Toronto, Ontario  
M8Z 5B3

Mr. Brock Buchanan  
Buchanan Trading Inc.  
4174 Dundas St. W.  
Toronto, Ontario  
M8X 1X3

Mr. M. A. Calkins  
Calkins & Burke Ltd.  
#500 - 1477 West Pender St.  
Vancouver, B.C.  
V6G 2S6

Mr. Jean Hrab  
Cominso (Canada) Inc.  
2199 de la Metropole  
Longueuil, Quebec  
J4G 1S5

Mr. J. P. McDonnell  
Demeter Agro (1977) Ltd.  
P.O. Box 189  
Lethbridge, Alberta  
T1J 3Y5

Mr. Marc Stevens  
Integral Ingredients Inc.  
24 Davistow Crescent  
Rexdale, Ontario  
M9V 3E9

Mr. Bruce G. Kenney  
Harold T. Griffin Inc.  
7491 Pacific Circle  
Mississauga, Ontario  
L5T 1X1

Mr. Jean Yves Monette  
Vac-O-Nut  
2400 Tees Street  
Ville St. Laurent, Quebec  
H4R 2B6

Mr. H. Thompson  
H & T International Food Brks.  
385 The West Mall, Suite 404  
Etobicoke, Ontario  
M9C 1E7

Mr. Gerry P. Dennehy  
Elders Grain Co. Ltd.  
269 Yale Avenue  
Winnipeg, Manitoba  
R3M 0L4

Mr. H. S. Lewis  
Halford - Lewis Ltd.  
465 St. Jean, Suite 606  
Montreal, Quebec  
H2Y 2R6

Mr. Rich Dobranski  
Elders Grain Co. Ltd.  
8431 - 160th Street  
Surrey, B.C.  
V3S 3T9

Mr. M. Crawford  
K. I. Litster Ltd.  
251 Bartley Drive  
Toronto, Ontario  
M4A 2N7

Mr. P. Lipsey  
Halford-Lewis Ltd.  
465 St. Jean St., Ste. 606  
Montreal, Quebec  
H2Y 2R6

Mr. R. Tisdale  
Northern Sales Co. Ltd.  
5th Floor, 200 Portage Ave.  
Winnipeg, Manitoba  
R3C 3X2

Mr. S. Zener  
K. I. Litster Ltd.  
251 Bartley Drive  
Toronto, Ontario  
M4A 2N7

Mr. Bill Bakker  
Stange Canada Inc.  
3340 Orlando Drive  
Mississauga, Ontario  
L4V 1C7

Mr. Pierre Lepinay  
Box 208  
Sutton, Quebec  
J0E 2K0

Mr. H. Andreae  
8 The Donway E., Apt. #446  
Don Mills, Ontario  
M5G 1V2

Mr. Tony Shah  
Shah Trading Company Ltd.  
3180 Pitfield  
Montreal, Quebec  
H4S 1K6

Mr. G. F. McCulloch  
Suite 208, 8111 Yonge St.  
Thornhill, Ontario  
L3T 4V9

Mr. Jack Singer  
Toronto Butcher and Packer  
920 Alness St. Unit #30  
Downsview, Ontario  
M3J 2H7

Mr. Don Awde  
Stange Canada Inc.  
3340 Orlando Drive  
Mississauga, Ontario  
L4V 1C7

Mr. Amir Sinderji  
Young-Winfield Canada Ltd.  
121 Hughson St. N.  
Hamilton, Ontario  
L8R 1G7

Mr. Joel Green  
Sova Foods Inc.  
175 Guthrie Ave.  
Dorval, Quebec  
H9P 2P5

Mr. Bodo Schmidt  
Quest International Canada Inc.  
15 Farmers Avenue  
Van Kleek Hill, Ontario  
K0B 1R0

Ms. Nora Martin  
U.F.L. Foods Inc.  
50 Fasken Dr. #18  
Rexdale, Ontario  
M9W 1K5

Mr. William McKnight  
155 Green Road  
East River Side  
St. John, N.B.  
E2H 1T2

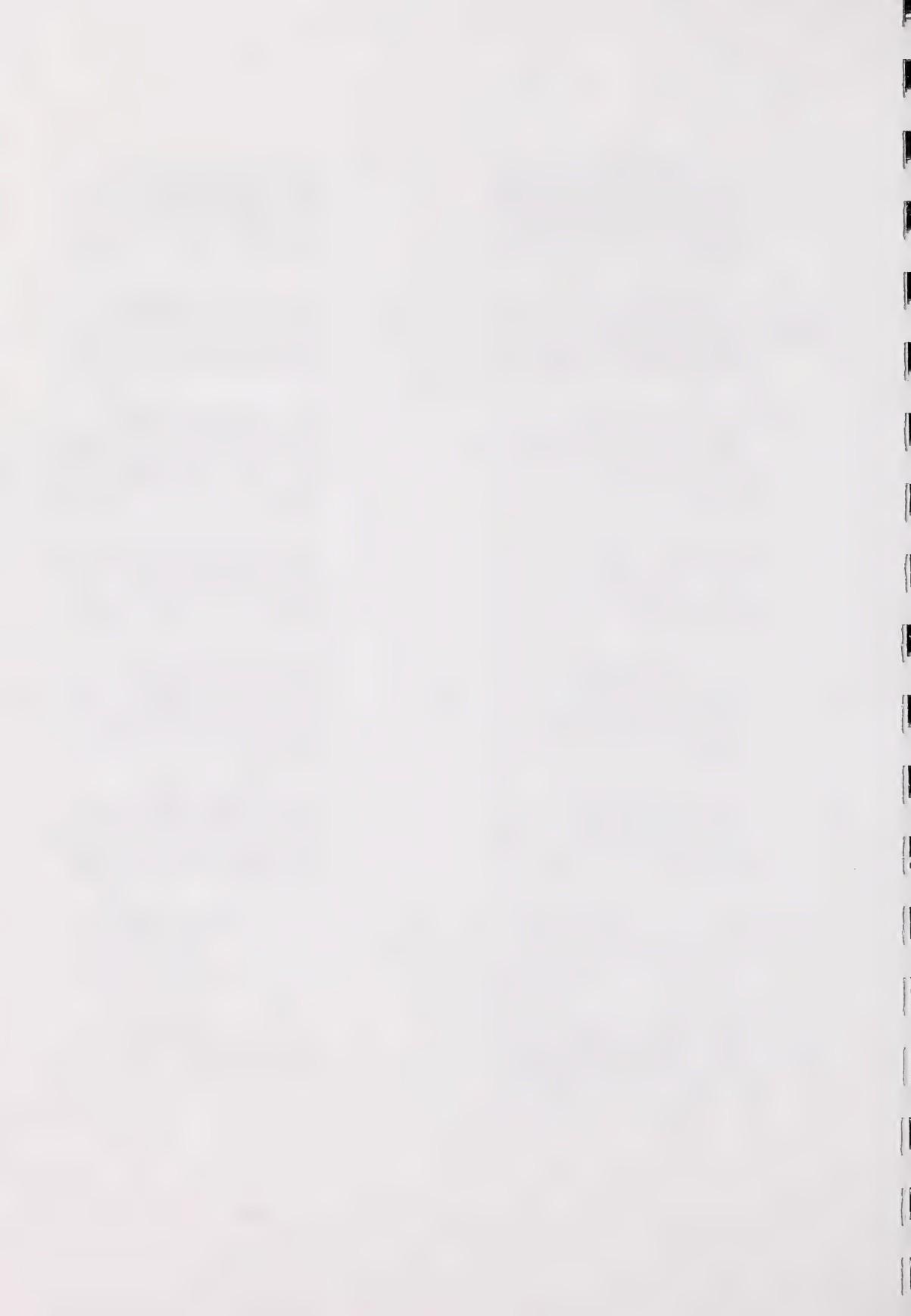
Mr. J. W. Shannon  
13180 - 55A Avenue  
Surrey, B.C.  
V3W 1C5

Mr. Stewart Wands  
61 Ocala Court  
Route #23, Jamaica Bay West  
Fort Myers, Florida  
33908

Mr. Bill McKeen  
360 Ridelle Ave. #2305  
Toronto, Ontario  
M6B 1K1

Mr. M. Nadeau  
Les Aliments "Le Chien d'Or"  
625 Marais Street  
Ville Vanier, Quebec  
G1M 2Y2

Mr. Rollie Woods  
Cargill Grain Co. Ltd.  
Box 5900  
Winnipeg, Manitoba  
R3C 4C5





# AMERICAN SPICE TRADE ASSOCIATION, INC.

580 Sylvan Avenue - P.O. Box 1267  
Englewood Cliffs, New Jersey 07632  
Telephone (201)-568-2163

## APPLICATION FOR MEMBERSHIP

Company Name: \_\_\_\_\_ Year Founded: \_\_\_\_\_

Street \_\_\_\_\_ City \_\_\_\_\_ State/Country \_\_\_\_\_ Zip \_\_\_\_\_ Telephone \_\_\_\_\_  
Individual to Represent Firm: \_\_\_\_\_ Please Type or Print \_\_\_\_\_

Date \_\_\_\_\_ Signature \_\_\_\_\_ Title \_\_\_\_\_  
Primary Business (service performed, products produced or handled): \_\_\_\_\_

hereby applies for Membership (See Page 2) in the American Spice Trade Association as an:  
Active Member:

Broker/Agent

Importer, Trader, Processor, Grower or Distributor

Allied Member:

Associate Member:

International Member:

subject to election by the Board of Directors in accordance with the provisions of Article IV, Section 7, of the By-Laws. The applicant agrees to abide by the By-Laws of the Association when membership is in force and effect and to pay the dues as established by the Association.

A Check drawn on a United States Bank in United States Dollars in the amount of \$ \_\_\_\_\_  
is enclosed. (See Regular Dues and Initiation Fee, Page 3. Also see Categorical Dues, Pages 3 and 4, for information regarding payment schedule.)

**COMMENTS OF SPONSOR AND SECONDER MUST BE PROVIDED** to aid the Membership-Admissions Committee and the Board of Directors in their appraisal of the applicant. Please be as expansive as possible, use second sheet if necessary.

Sponsored by: \_\_\_\_\_  
NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_

COMMENTS: \_\_\_\_\_

Seconded by: \_\_\_\_\_  
NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_

COMMENTS: \_\_\_\_\_

Date: \_\_\_\_\_  
Sponsor's Signature: \_\_\_\_\_

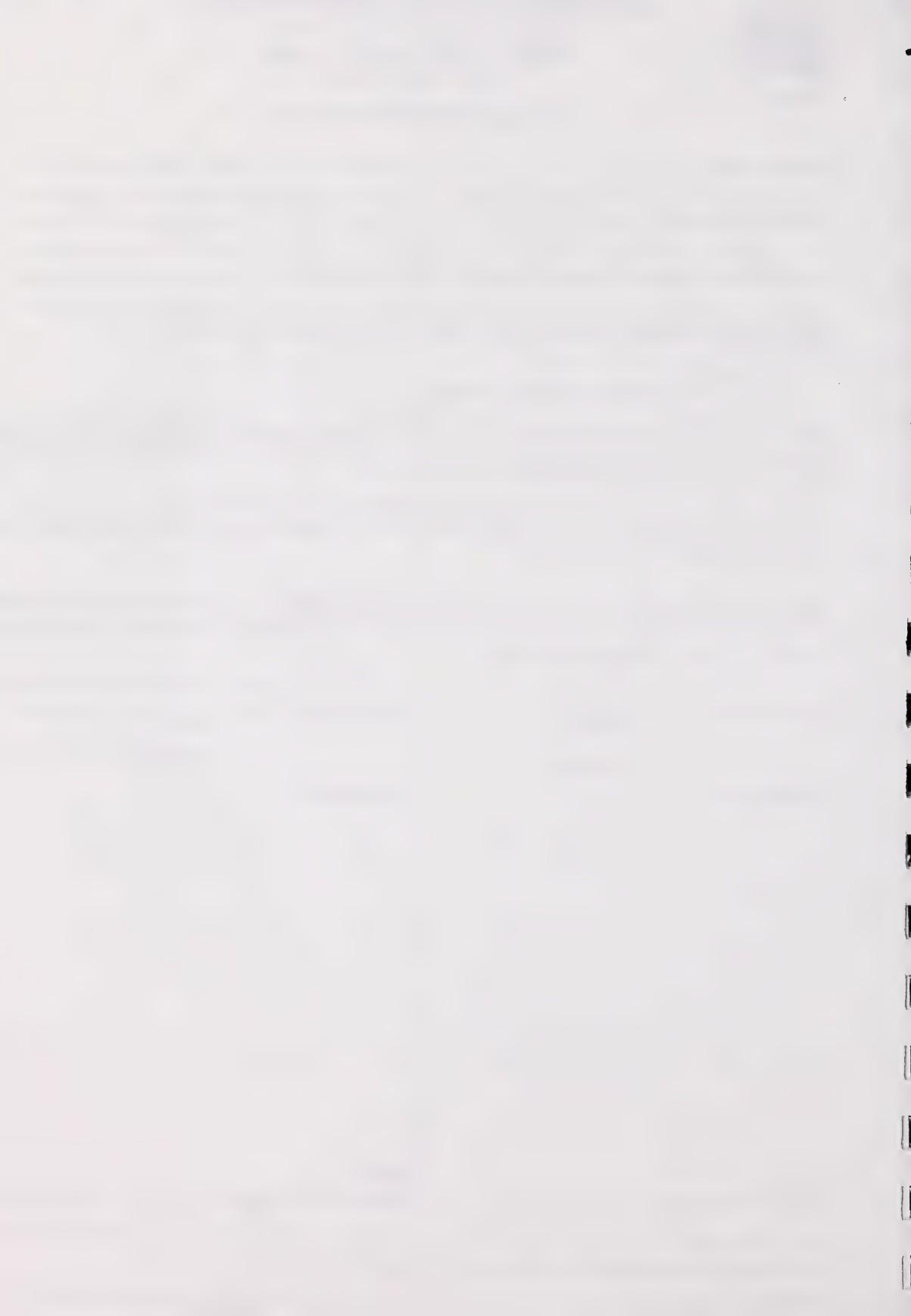
Date: \_\_\_\_\_  
Seconder's Signature: \_\_\_\_\_

APPROVED BY MEMBERSHIP-ADMISSIONS COMMITTEE

Date: \_\_\_\_\_

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CHAIRMAN



## **DEFINITION** (Article II, Section 1)

The term "Spice Trade" and, where it appears in the By-Laws, the term "Spice Industry" includes, all those individuals, partnerships, firms, corporations (or their divisions) or associations (hereinafter referred to as "firms") whose activities, to a significant extent, involve the importation, trading, processing, growing and distribution of spices, seeds, herbs and non-spice seasonings intended as condiments for culinary use (hereinafter referred to as "spices").

## **OBJECTIVES**

To consider and deal with those common intra-industry problems of management, such as those involved in the importation, brokerage, storage, processing and distribution of spices; to secure cooperative action in advancing the common purpose of its members; foster equity in business usages, and promote activities aimed at enabling the industry to conduct itself with the greatest efficiency and economy.

To give consideration and expression upon questions affecting the industry as related to the financial, commercial and industrial interest of the country. To cooperate with other industries and organizations.

To do anything necessary and proper for the accomplishment of any objects herein set forth, or which shall be recognized as proper and lawful objectives of trade associations, all of which shall be consistent with the public interest, as well as in the interest of this trade.

## **MEMBERSHIP**

**ACTIVE** - All firms engaged in the Spice Trade, as defined in Article II, Section 1, of the By-Laws, and whose principal place of business is the United States of America, its Territories or Possessions, are eligible for Active membership in one of the following categories:

*Brokers and Agents* - Those firms whose activities include that of acting as Brokers and Agents for the purchase or sale of spices.

*Importers, Traders, Processors, Growers or Distributors* - Those firms whose activities include that of acting as importers, traders, processors, growers or distributors of spices.

**ALLIED** - All firms not directly engaged in the Spice Trade, as defined in Article II, Section 1, of the By-Laws, but who use spices as an ingredient in a finished food product, who have an interest in the advancement of the Association's goals, and whose principal place of business is in the United States of America, its Territories or Possessions, are eligible for Allied membership.

**ASSOCIATE** - All firms not directly engaged in the use of spices, but serving the Spice Trade, and whose principal place of business is in the United States of America, its Territories or Possessions, are eligible for Associate membership.

**INTERNATIONAL** - All firms engaged in the Spice Trade or who use spices as an ingredient in a finished food product, and whose principal place of business is outside of the United States of America, its Territories or Possessions, are eligible for International membership.

**ELECTION OF MEMBERS** (Article IV, Section 7) - Any firm eligible for membership as described above, on making written application, must be duly sponsored and seconded in writing in accordance with the By-Laws. Active members may sponsor and second applications for membership in all groups, and Allied, Associate and International members may sponsor and second firms filing applications for membership in their particular groups. Applications for membership shall be announced to the membership at least thirty (30) days prior to the meeting at which their names are voted on and shall be balloted upon by the Board of Directors, a majority vote being necessary to elect. If favorably acted upon, provided any dues and initiation fees are paid, according to the By-Laws, such applicant shall become a member of that segment of the Association determined by the Executive Committee of the Board of Directors, which determination may be altered by the Board of Directors upon re-evaluation.

**DURATION OF MEMBERSHIP AND RESIGNATION** - Membership may terminate by death, voluntary withdrawal as herein provided or otherwise in pursuance of the By-Laws. The right of a member to vote, and all other rights, privileges and interests of a member, in or to the Association, its rights, privileges, and property, shall cease on the termination of membership. Any member may, by giving written notice of such intention, withdraw from membership. Such notice shall be presented to the Executive Committee of the Board of Directors at its next meeting. Withdrawals shall be effective upon fulfillment of all obligations to the date of withdrawal.

**SUSPENSION AND EXPULSION** - For just and reasonable cause, as stated herein, or as elsewhere specifically provided in the By-Laws, any membership may be suspended or terminated. Sufficient cause of such suspension or termination of membership shall be violation of the By-Laws or any agreement, rule or practice properly adopted by the Association, or any other conduct prejudicial to the interest of the Association. Such suspension or expulsion shall be by two-thirds (2/3) vote of the total membership of the Board of Directors: Provided, that a statement of the charges shall have been mailed by registered post to the last recorded address of the member at least fifteen (15) days before final action is taken thereon. This statement shall be accompanied by a notice of the time and place of the meeting of the Board of Directors at which the charges shall be considered, and the member and/or his representative shall have the opportunity to appear in person to present any defense to such charges before action is taken thereon.

#### **REGULAR DUES & INITIATION FEE**

**ALL APPLICANTS FOR MEMBERSHIP SHALL DEPOSIT WITH THEIR APPLICATION, THE INITIATION FEE AND THE FIRST PAYMENT OF REGULAR DUES.**

The regular dues are payable in advance on July 1 and are non-refundable. Firms accepted to membership after December 31 shall have one half (1/2) of the intitial dues payment credited to the following year.

The regular dues of an Active member shall be \$1,500; an Allied member shall be \$1,000; an Associate member shall be \$750; an International member shall be \$1,000 per annum.

All applicants for membership shall pay an initiation fee of \$200.

The fiscal year shall be from July 1 to June 30 inclusive.

#### **CATEGORICAL DUES**

**ALL IMPORTER, TRADER, PROCESSOR, GROWER AND DISTRIBUTOR MEMBER FIRMS, AND THOSE INTERNATIONAL MEMBER FIRMS TRADING ON SPOT, EX-DOCK OR FUTURE DELIVERY ASTA CONTRACTS IN THE UNITED STATES,** shall, annually, not later than December 31, categorize themselves on forms provided by the ASTA office. The categorization shall be based on pounds of spices purchased or sold per year and may reflect either the previous year's actual figures or projected figures for the current year. The rate of categorization shall be .001 cents per pound with a minimum of \$1,000 (1 million pounds and under) and a cap of \$35,000 (35 million pounds and over).

One half of the total will be invoiced by the Association Semiannually—September and March. Payment shall be made within thirty (30) days after receipt of the invoice. The category into which a firm has placed itself is strictly confidential, known only by the one person in the Association office who has been designated to handle the entire transaction.

ALL BROKER AND AGENT MEMBER FIRMS will be invoiced at the rate of \$700 per income producer in each firm. Firms will be invoiced by the Association in September and March of each year for one-half the annual total due.

The number of income producers is confidential and will be known only to a special compliance committee of three members representing Broker and Agent Member Firms to be appointed by the Trading Group Executive Committee. The one person in the Association office who has been designated to handle Categorical Dues will also be privy to this information. The number of producers within each firm will be reviewed annually, not later than December 31, by the compliance committee, using information supplied on special survey forms, by the individual Broker and Agent Member Firms.

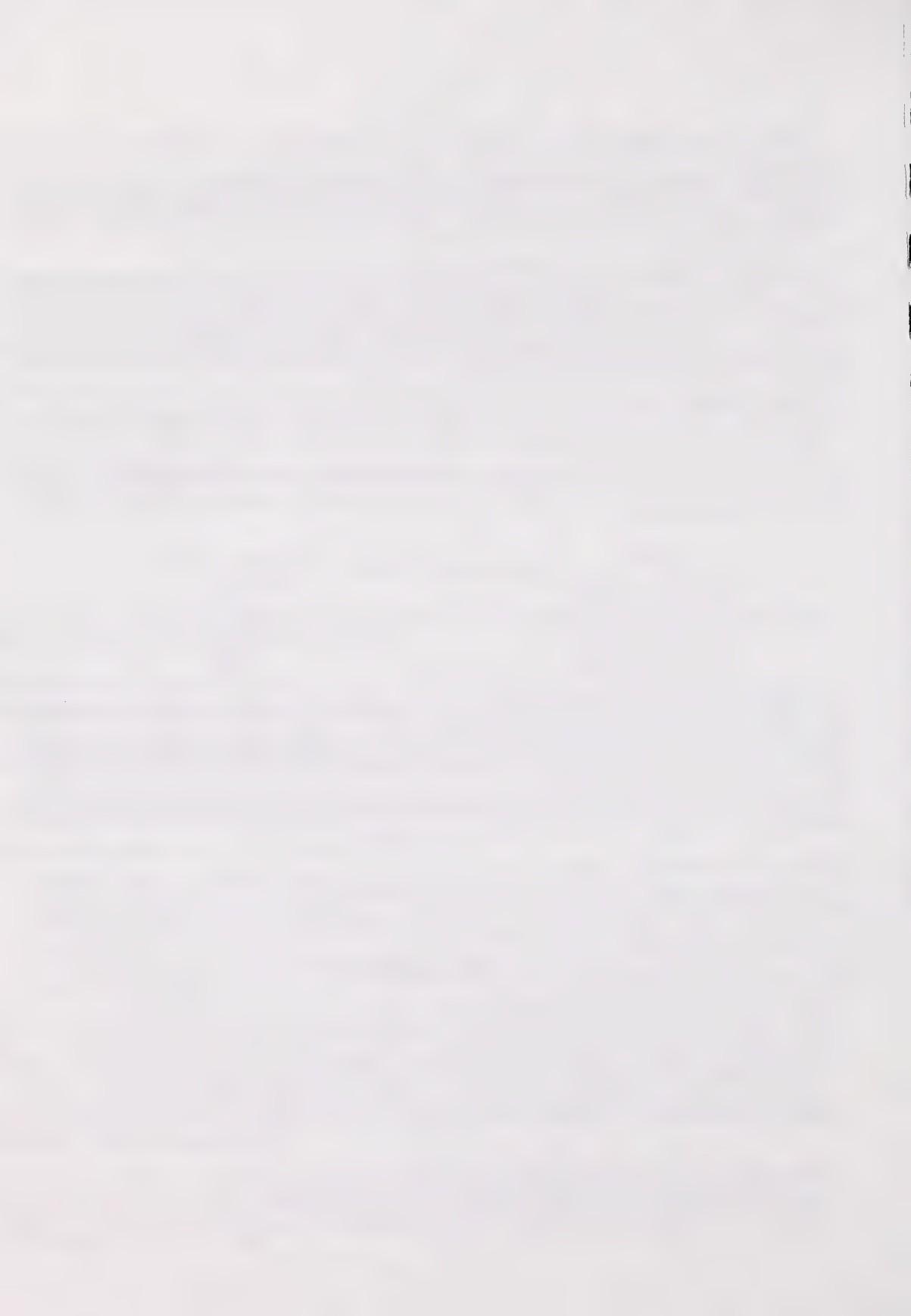
"Income Producers" are defined as those individuals who act as Agents and Brokers in the sale of spices, seeds and herbs.

ALL ACTIVE MEMBERS ENGAGED IN THE SALE, IMPORTATION, OR USE OF OLEORESINS shall annually, not later than December 31, categorize themselves on forms provided by the Association office in accordance with the following schedule:

| Category              | Annual Invoice Amount |
|-----------------------|-----------------------|
| 150,000 lbs. and more | \$4,000               |
| 100,000 lbs. and more | 2,200                 |
| 50,000 lbs. and more  | 1,100                 |
| 25,000 lbs. and more  | 550                   |
| Less than 25,000 lbs. | 275                   |

This schedule is based on pounds of oleoresin imported, purchased or sold per year and should reflect the current year's actual figures projected for the completion of the calendar year. One half of the total will be invoiced by the Association semiannually - September and March. Payment shall be made within thirty (30) days after receipt of the invoice. The category into which a firm has placed itself is strictly confidential, known only by one person in the Association office who has been designated to handle the entire transaction. The number of contributors will be reviewed annually in November by a compliance committee of individual extractor members, using information supplied on special survey forms.

It is the intent of these Categorical Dues to encompass all Active members engaged in the sale, importation or use of oleoresins whether or not they have included themselves in another category. Brokers and Agents selling for account of principals to members of ASTA are not required to pay under this category. If, however, they act as principals and resell or act as Agent or Broker to a non-ASTA member, they are responsible for this payment as in the case of spices. Users of oleoresins are also responsible for payments under this category, regardless of the fact that payment was made by a prior reseller or manufacturer. Prime producers are responsible for contributions based on quantities sold.



**SPOT CONTRACT**

AMERICAN SPICE TRADE ASSOCIATION  
580 Sylvan Avenue  
P.O. Box 1267, Englewood Cliffs, N.J. 07632, U.S.A.



As amended, effective on and after August 1, 1988

Contract Number \_\_\_\_\_

City \_\_\_\_\_

Date \_\_\_\_\_

SOLD BY: \_\_\_\_\_ Seller \_\_\_\_\_

TO: \_\_\_\_\_ SUBJECT TO THE RULES AND CONDITIONS SET FORTH BELOW AND ON THE REVERSE SIDE. Buyer \_\_\_\_\_

QUANTITY, about \_\_\_\_\_

ARTICLE \_\_\_\_\_

QUALITY \_\_\_\_\_ AND IN ACCORDANCE WITH OFFICIAL ASTA SPECIFICATIONS EFFECTIVE JANUARY 1, 1983 AND ANY AMENDMENTS THERETO IN EFFECT ON THE DATE OF THIS CONTRACT.

PRICE \_\_\_\_\_

TERMS OF PAYMENT \_\_\_\_\_

WEIGHTS \_\_\_\_\_

SHIPPING INSTRUCTIONS \_\_\_\_\_

REMARKS:

COMMISSION TO BE PAID BY SELLER (OR BY BUYER WHEN DEDUCTED FROM INVOICE) TO THE AGENT/BROKER WHETHER CONTRACT CANCELLED OR NOT CANCELLED. COMMISSION DEDUCTED FROM SELLER'S INVOICE IN FAVOR OF THE AGENT OR BROKER SHALL BE REMITTED PROMPTLY AFTER PAYMENT OF DOCUMENTS.

ALL QUESTIONS, CONTROVERSYES AND CLAIMS, ARISING UNDER THIS CONTRACT, AND ANY CONTROVERSYES BETWEEN A PARTY HERETO AND THE BROKER OR AGENT RELATING TO THE PAYMENT OF BROKERAGE OR COMMISSION HEREUNDER, SHALL BE SUBMITTED TO AND SETTLED BY ARBITRATION UNDER THE RULES OF THE AMERICAN SPICE TRADE ASSOCIATION PRINTED BELOW AND THE RULES CONTAINED IN ARBITRATION BOOKLET #3, WHICH ARE PART OF THIS CONTRACT. ARBITRATION BOOKLET #3 IS AVAILABLE AT NO COST FROM THE AMERICAN SPICE TRADE ASSOCIATION.

**WAIVER OF PERSONAL SERVICE**

Each party to this contract hereby consents that any papers, notices or process necessary or proper for the institution or continuation of an arbitration proceeding, for the confirmation of an award, for the entry of judgement on an award made, or otherwise required to be given by law or under the rules herein set forth, including notices as to review, may be given or served upon such party (a) by ordinary, certified, or registered mail (air mail if destination is one thousand miles or more from arbitration site), telex, telegram, or cable addressed to such parties' last known address; or (b) by personal service, within or without the State wherein the arbitration is to be held, or within or without the limits of the jurisdiction of the County or Corporation in the premises (whether such party be within or without the United States of America); or (c) where a party to a controversy is not located in the City of New York, by mail or personally, as provided in (a) and (b) hereof, upon his agent or broker through whom the contract was made; provided that a reasonable time shall be allowed such party to appear and defend.

THIS CONTRACT IS GOVERNED BY THE LAWS OF THE STATE OF NEW YORK AND SHALL NOT BE ASSIGNED WITHOUT THE WRITTEN CONSENT OF BOTH SELLER AND BUYER.

**ACCEPTED:**

Broker: \_\_\_\_\_

As Selling Agent for: \_\_\_\_\_

## RULES FOR SPOT CONTRACT

### 1. MODIFICATION

Any part of this contract, written or inserted on the reverse side hereof, shall modify the rules printed on this side. Any modification of this contract shall be in writing only.

### 2. DEFINITIONS

- (a) Wherever the word "DAY" is used in this contract it shall mean "Calendar Day."
- (b) "ASTA" shall mean the American Spice Trade Association, Inc.
- (c) "FDA" shall mean the U.S. Food and Drug Administration, Department of Health and Human Services or its successor agency or agencies having authority to enforce the Food, Drug & Cosmetic Act of June 25, 1938, and amendments thereto.

### 3. QUANTITY

- (a) The word "about" means that no excess or deficiency greater than 2½% of the quantity contracted may be tendered.
- (b) Unless otherwise specified, a ton shall equal 1,000 kilos (2,204.62 pounds).

### 4. STORAGE AND INSURANCE

- (a) Seller shall grant buyer 7 days free storage and insurance coverage starting with the mailing date or hand delivery of a valid delivery order.
- (b) Any merchandise not removed within the time specified, remains in warehouse or on dock at buyer's risk and expense.

### 5. TENDERS

- (a) The date of delivery shall be the date when seller mails or hand delivers a valid delivery order, negotiable warehouse receipt or other instrument of title to buyer, buyer's agent, or appointee or common carrier, as directed by the buyer.
- (b) Tender shall be made only after the merchandise has complied with FDA Regulations, and with ASTA Specifications as determined by a laboratory approved by ASTA.
- (c) The Certificate of Analysis shall be dated not later than the date of delivery order and shall be presented with invoice.
- (d) If a pro-forma invoice is issued, it must be accompanied by a tare certificate unless the seller orders taring of the merchandise.
- (e) If the merchandise is tendered on a dock where graduated pier demurrage rates apply, and the buyer allows the merchandise to remain beyond the 7-day period granted, seller shall grant buyer the benefit of 5 days demurrage at first period rates according to the demurrage scale applicable. Thereafter, actual demurrage rates apply.
- (f) In case the buyer shall object to the quality of any delivery of merchandise after it has been received by him, the merchandise shall not be returned or disposed of in any way until the matter has been resolved either by mutual agreement or by arbitration.

### 6. WEIGHTS

- (a) Unless otherwise agreed, all merchandise shall be weighed

at seller's expense by a Certified Public Weighmaster at the time and place of delivery, but not later than the last day of the buyer's free storage period.

- (b) A Certificate of Weight shall be issued which shall be valid for 14 days.

### 7. TARES

- (a) Packing - in bags or bales - sold on "net weight" basis: Original shipping tares shall govern provided the packages are uniform. These tares shall be substantiated at port of shipment by independent surveyor's certificate and are to be ascertained by taring 5% of the sound portion of each chop or invoice. If 300 or more packages are involved, 3% taring is sufficient.
- (b) Packing in double bags - sold on "gross for net weight" basis: Tare for outer bags shall be allowed to the buyer.
- (c) Packing in cases, chests, barrels or drums: Shipper's marked tare shall govern.
- (d) Buyer shall have the option to tare 5% of the sound portion of each chop (3% or 300 or more packages involved). If such Tare Certificate by Public Weighmaster proves the shipping tare to be inaccurate, the landed tares shall govern. In this case the expense of taring shall be for seller's account. The Public Weighmaster's Certificate shall state the gross weight of each package tared.

### 8. STANDARDS

- (a) All merchandise purchased under this contract shall have complied with U.S. port of entry with the rules and standards under which the FDA enforces the Food, Drug and Cosmetic Act of 1938 and amendments thereto and shall have complied also with the ASTA Specifications in effect on date of this contract.
- (b) Light Berry Standard for Black Pepper: The ASTA Certificate of Analysis shall also show the percentage of light berries. Method 14 of ASTA Analytical Methods of 1968 is to be used for the determination of Light Berries. Any excess over 2% up to 4% shall be settled by an allowance to the buyer of an equivalent percentage of the contract price.

### 9. MARKING

All merchandise must be marked in English with the country of origin and the name of the product on each package and in accordance with U.S. Customs regulations in effect on date of contract. Buyer may mark for account of seller whatever is not marked.

### 10. INSOLVENCY OF BUYER OR SELLER.

If before the maturity of this contract, either party liable on the face thereof shall suspend payment, or commit an act of bankruptcy or issue a notice convening a meeting of his creditors, or become bankrupt or insolvent, or fail to meet his general trade obligations in the regular course of business, this contract shall thereupon be closed, (48 hours' notice having been previously given to him) at the price prevailing on the closing day.

### 11. FORCE MAJEURE.

This contract is subject to Force Majeure.

**FUTURE DELIVERY CONTRACT**

AMERICAN SPICE TRADE ASSOCIATION  
580 Sylvan Avenue  
P.O. Box 1267, Englewood Cliffs, N.J. 07632, U.S.A.

As amended, effective on and after August 1, 1988



Contract Number \_\_\_\_\_

City \_\_\_\_\_

Date \_\_\_\_\_

SOLD BY: \_\_\_\_\_ Seller \_\_\_\_\_

TO: \_\_\_\_\_ SUBJECT TO THE RULES AND CONDITIONS SET FORTH BELOW AND ON THE REVERSE SIDE Buyer \_\_\_\_\_

QUANTITY, about \_\_\_\_\_

ARTICLE \_\_\_\_\_

QUALITY \_\_\_\_\_ AND IN ACCORDANCE WITH OFFICIAL ASTA SPECIFICATIONS EFFECTIVE JANUARY 1, 1983 AND ANY AMENDMENTS THERETO IN EFFECT ON THE DATE OF THIS CONTRACT.

PRICE \_\_\_\_\_

TERMS OF PAYMENT \_\_\_\_\_

WEIGHTS \_\_\_\_\_

DELIVERY: TO BE READY FOR DELIVERY AT ONE OF THE STEAMSHIP DOCKS, PUBLIC WAREHOUSES OR RECONDITIONING PLANTS IN THE PORT OF \_\_\_\_\_

.19 \_\_\_\_\_

REMARKS:

COMMISSION TO BE PAID BY SELLER (OR BY BUYER WHEN DEDUCTED FROM INVOICE) TO THE AGENT/BROKER WHETHER CONTRACT CANCELLED OR NOT CANCELLED. COMMISSION DEDUCTED FROM SELLER'S INVOICE IN FAVOR OF THE AGENT OR BROKER SHALL BE REMITTED PROMPTLY AFTER PAYMENT OF DOCUMENTS.

ALL QUESTIONS, CONTROVERSYES AND CLAIMS, ARISING UNDER THIS CONTRACT, AND ANY CONTROVERSYES BETWEEN A PARTY HERETO AND THE BROKER OR AGENT RELATING TO THE PAYMENT OF BROKERAGE OR COMMISSION HEREUNDER, SHALL BE SUBMITTED TO AND SETTLED BY ARBITRATION UNDER THE RULES OF THE AMERICAN SPICE TRADE ASSOCIATION PRINTED BELOW AND THE RULES CONTAINED IN ARBITRATION BOOKLET #3, WHICH ARE PART OF THIS CONTRACT. ARBITRATION BOOKLET #3 IS AVAILABLE AT NO COST FROM THE AMERICAN SPICE TRADE ASSOCIATION.

**WAIVER OF PERSONAL SERVICE**

Each party to this contract hereby consents that any papers, notices or process necessary or proper for the institution or continuation of an arbitration proceeding, for the confirmation of an award, for the entry of judgement on an award made, or otherwise required to be given by law or under the rules herein set forth, including notices as to review, may be given or served upon such party (a) by ordinary, certified, or registered mail (air mail if destination is one thousand miles or more from arbitration site), telex, telegram, or cable addressed to such parties' last known address; or (b) by personal service, within or without the State wherein the arbitration is to be held, or within or without the limits of the jurisdiction of the Court having jurisdiction in the premises (whether such party be within or without the United States of America); or (c) where a party to a controversy is not located in the City of New York, by mail or personally, as provided in (a) and (b) hereof, upon his agent or broker through whom the contract was made; provided that a reasonable time shall be allowed such party to appear and defend.

THIS CONTRACT IS GOVERNED BY THE LAWS OF THE STATE OF NEW YORK AND SHALL NOT BE ASSIGNED WITHOUT THE WRITTEN CONSENT OF BOTH SELLER AND BUYER.

**ACCEPTED:**

Broker: \_\_\_\_\_

As Selling Agent for: \_\_\_\_\_

## RULES FOR FUTURE DELIVERY CONTRACT

### 1. MODIFICATION

Any part of this contract, written or inserted on the reverse side hereof, shall modify the rules printed on this side. Any modification of this contract shall be in writing only.

### 2. DEFINITIONS

- (a) Wherever the word "DAY" is used in this contract it shall mean "Calendar Day."
- (b) "ASTA" shall mean the American Spice Trade Association, Inc.
- (c) "FDA" shall mean the U.S. Food and Drug Administration, Department of Health and Human Services or its successor agency of agencies having authority to enforce the Food, Drug & Cosmetic Act of June 25, 1938, and amendments thereto.
- (d) First half of a month shall be defined as the first 15 days; second half shall be defined as the balance of a month.
- (e) "Business days" shall be understood to exclude Saturdays, Sundays and Federal Legal Holidays.
- (f) "Business hours" shall mean the hours between 9:00 a.m. and 4:30 p.m.

### 3. QUANTITY

- (a) The word "about" means that no excess or deficiency greater than 2½% of the quantity contracted may be tendered.
- (b) Unless otherwise specified, a ton shall equal 1,000 kilos (2,204.62 pounds).
- (c) Quantities of 30 tons or more may be separately tendered in minimum lots of 15 tons.

### 4. STORAGE AND INSURANCE

- (a) Seller shall grant buyer 7 days free storage and insurance coverage starting with the mailing date or hand delivery of a valid delivery order.
- (b) Any merchandise not removed within the time specified, remains in the warehouse or on the dock at buyer's risk and expense.

### 5. DEMURRAGE

If the merchandise is tendered on a dock where graduated demurrage rates apply, and buyer allows merchandise to remain beyond the 7-day period granted, seller shall grant buyer the benefit of 5 days demurrage at first period rates according to the demurrage scale applicable. Thereafter actual demurrage rates apply.

### 6. STANDARDS

- (a) All merchandise tendered under this contract for delivery in the U.S.A. shall have complied at the Port of Entry with the rules and standards under which the FDA enforces the Food, Drug and Cosmetic Act of 1938 and amendments thereto and shall have complied also with the ASTA specifications in effect on the date of this contract.
- (b) Light Berry Standard for Black Pepper: The ASTA Certificate of Analysis shall also show the percentage of light berries.  
Method 14 of ASTA Analytical Methods of 1968 is to be used for the determination of light berries.  
Any excess over 2% up to 4% shall be settled by an allowance to the buyer of an equivalent percentage of the contract price.

### 7. MARKING

All merchandise must be marked in English with the country of origin and the name of the product on each package and in accordance with U.S. Customs regulations in effect on date of contract. Buyer may mark for account of seller whatever is not marked.

### 8. WEIGHTS

Merchandise shall be weighed at seller's expense by a Certified

Public Weighmaster at the time and place of delivery, but not later than the last day of the buyer's free storage period. A certificate of weight shall be issued which shall be valid for 14 days.

### 9. TARES

- (a) Packing - in bags or bales - sold on "net weight" basis: Original shipping tares shall govern provided the packages are uniform. These tares shall be substantiated at port of shipment by an independent surveyor's certificate and are to be ascertained by taring 5% of the sound portion of each chop or invoice. If 300 or more packages are involved, 3% taring is sufficient.
- (b) Packing - in double bags - sold on "gross for net weight" basis: Tare for outer bags shall be allowed to the buyer.
- (c) Packing in cases, chests, barrels or drums: Shipper's marked tare shall govern.
- (d) Buyer shall have the option to tare 5% of the sound portion of each chop (3% if 300 or more packages involved). If such tare certificate by Public Weighmaster proves the shipping tare to be inaccurate, the landed tares shall govern. In this case, the expense of taring shall be for seller's account. The Public Weighmaster's certificate shall state the gross weight for each package tared.

### 10. TENDERS

- (a) Seller shall tender on any business day during the month of delivery, but not later than 11:00 a.m. local time on the day preceding the last 2 business days of the month.
- (b) A delivery prescribed for a period of less than 1 month shall be tenderable on any business day during the entire delivery period.
- (c) When intermediate contracts are involved and are identical in all aspects except as to parties, date, price and terms of payment, each seller other than the first shall be at liberty to tender during the 3 business hours following receipt of the tender made to him, even though the tender is beyond the time specified in the contract by the first seller, and provided each seller, subsequent to the first, shall have made his tender within the time allowed.
- (d) Tender shall be made by delivery of seller's delivery order addressed to the dock or warehouse where the merchandise is located.
- (e) If for any reason the normal operations of such dock or warehouse shall be so affected as to make it impossible for buyer, within 2 full business days from receipt of the delivery order, to remove the merchandise from such dock or warehouse, seller shall be required to make a tender from another dock or warehouse not so affected.
- (f) Tender shall be made only after the merchandise has complied with FDA Regulations, and with ASTA Specifications as determined by a laboratory approved by ASTA.
- (g) A Certificate of Analysis dated not later than the date of tender shall be presented with either the delivery documents or invoice.
- (h) If a pro-forma invoice is issued, it must be accompanied by a tare certificate unless the seller orders taring of the merchandise.
- (i) The merchandise must be tendered in original packages unless reconditioned.

### 11. INSOLVENCY OF BUYER OR SELLER

If before the maturity of this contract, either party liable on the face thereof shall suspend payment, or commit an act of bankruptcy, or issue a notice convening a meeting of his creditors, or become bankrupt or insolvent, or fail to meet his general trade obligations in the regular course of business, this contract shall thereupon be closed (48 hours' notice having been previously given to him) at the price prevailing on the closing day.

### 12. FORCE MAJEURE

This contract is subject to force majeure.

**IMPORT EX-DOCK CONTRACT**

AMERICAN SPICE TRADE ASSOCIATION  
580 Sylvan Avenue  
P. O. Box 1267, Englewood Cliffs, N.J. 07632, U.S.A.

As amended, effective on and after August 1, 1988



Contract Number \_\_\_\_\_

City \_\_\_\_\_

Date \_\_\_\_\_

SOLD BY: \_\_\_\_\_ Seller \_\_\_\_\_

TO: \_\_\_\_\_ SUBJECT TO THE RULES AND CONDITIONS SET FORTH BELOW AND ON THE REVERSE SIDE Buyer \_\_\_\_\_

QUANTITY, about \_\_\_\_\_ *(Handwritten note: 250 cases)*

ARTICLE \_\_\_\_\_

QUALITY \_\_\_\_\_ AND IN ACCORDANCE WITH OFFICIAL ASTA SPECIFICATIONS EFFECTIVE JANUARY 1, 1983 AND ANY AMENDMENTS THERETO IN EFFECT ON THE DATE OF THIS CONTRACT.

PRICE \_\_\_\_\_ (DUTIES: ANY CHANGE IN IMPORT DUTIES EFFECTIVE AFTER THE DATE OF THIS CONTRACT SHALL BE FOR ACCOUNT OF BUYER.)

SHIPMENT \_\_\_\_\_  
PARTIAL SHIPMENT \_\_\_\_\_ PERMITTED      TRANSSHIPMENT \_\_\_\_\_ PERMITTED

TERMS OF PAYMENT \_\_\_\_\_

WEIGHTS \_\_\_\_\_

REMARKS: \_\_\_\_\_

COMMISSION TO BE PAID BY SELLER (OR BY BUYER WHEN DEDUCTED FROM INVOICE) TO THE AGENT/BROKER WHETHER CONTRACT CANCELLED OR NOT CANCELLED. COMMISSION DEDUCTED FROM SELLER'S INVOICE IN FAVOR OF THE AGENT OR BROKER SHALL BE REMITTED PROMPTLY AFTER PAYMENT OF DOCUMENTS.

ALL QUESTIONS, CONTROVERSES AND CLAIMS, ARISING UNDER THIS CONTRACT, AND ANY CONTROVERSES BETWEEN A PARTY HERETO AND THE BROKER OR AGENT RELATING TO THE PAYMENT OF BROKERAGE OR COMMISSION HEREUNDER, SHALL BE SUBMITTED TO AND SETTLED BY ARBITRATION UNDER THE RULES OF THE AMERICAN SPICE TRADE ASSOCIATION PRINTED BELOW AND THE RULES CONTAINED IN ARBITRATION BOOKLET #3, WHICH ARE PART OF THIS CONTRACT. ARBITRATION BOOKLET #3 IS AVAILABLE AT NO COST FROM THE AMERICAN SPICE TRADE ASSOCIATION.

**WAIVER OF PERSONAL SERVICE**

Each party to this contract hereby consents that any papers, notices or process necessary or proper for the institution or continuation of an arbitration proceeding, for the confirmation of an award, for the entry of judgement on an award made, or otherwise required to be given by law or under the rules herein set forth, including notices as to review, may be given or served upon such party (a) by ordinary, certified, or registered mail (air mail if destination is one thousand miles or more from arbitration site), tele., telegram, or cable addressed to such parties' last known address; or (b) by personal service, within or without the State wherein the arbitration is to be held, or within or without the limits of the jurisdiction of the Court having jurisdiction in the premises (whether such party be within or without the United States of America); or (c) where a party to a controversy is not located in the City of New York, by mail or personally, as provided in (a) and (b) hereof, upon his agent or broker through whom the contract was made; provided that a reasonable time shall be allowed such party to appear and defend

THIS CONTRACT IS GOVERNED BY THE LAWS OF THE STATE OF NEW YORK AND SHALL NOT BE ASSIGNED WITHOUT THE WRITTEN CONSENT OF BOTH SELLER AND BUYER.

**ACCEPTED:**

Broker: \_\_\_\_\_

As Selling Agent for: \_\_\_\_\_

## RULES FOR EX-DOCK CONTRACT

### 1. MODIFICATION

Any part of this contract, written or inserted on the reverse side hereof, shall modify the rules printed on this side. Any modification of this contract shall be in writing only.

### 2. DEFINITIONS

- (a) Wherever the word "DAY" is used in this contract it shall mean "Calendar Day."
- (b) "ASTA" shall mean the American Spice Trade Association, Inc.
- (c) "FDA" shall mean the U.S. Food and Drug Administration, Department of Health and Human Services or its successor agency or agencies having authority to enforce the Food, Drug & Cosmetic Act of June 25, 1938, and amendments thereto.

### 3. QUANTITY

- (a) The word "about" means that no excess or deficiency at time of shipment may be greater than 2½% of the quantity contracted.
- (b) Unless otherwise specified, a ton shall equal 1,000 kilos (2,204.62 pounds).
- (c) The word "Afloat" shall mean that the vessel carrying the merchandise shall have left the port of shipment prior to the contract date.
- (d) "Immediate" shall mean shipment within 7 days of contract date.
- (e) "Prompt" shall mean shipment within 14 days of contract date.
- (f) First half of a month shall be defined as the first 15 days; second half shall be defined as the balance of a month.
- (g) Each Bill of Lading shall be treated as a separate contract.
- (h) Merchandise shall be shipped on an on-board Bill of Lading and the date thereof shall be prima facie evidence of the date of shipment.

### 5. CONTAINER CLAUSE

Unless otherwise agreed, shipment shall be breakbulk or in house-to-pier or pier-to-pier containers. If so containerized, the cargo shall be made available to the buyer or his order, devanned without stripping charges, at the port of discharge.

In the case of house-to-pier, or house-to-house containers, seller guarantees the correct count as per Bill(s) of Lading.

- (a) Sampling pursuant to the Import Regulations and Standards shall take place at the pier; if impossible, then the above-mentioned sampling shall take place at the time the container is being stripped at public or private warehouse.
- (b) Where buyer and seller have agreed to pier-to-house or house-to-house containers, and have agreed that entry and sampling are accomplished at other than the port of discharge, all inland freight charges incidental to reconditioning, when required under the Import Regulations and Standards, shall be shared equally by buyer and seller.
- (c) All Bills of Lading for containerized merchandise shall show the number of packages in the container.

### 6. DECLARATIONS

- (a) Declarations shall be made by cable, telegraph, telex or telephone. Telephone declarations must be confirmed in writing.
- (b) Seller shall declare the name of the carrying vessel to his representative or to the buyer as soon as possible but not later than 21 days after the last day of the shipping period.
- (c) Declarations must be made prior to the arrival of vessel at destination, unless it can be shown that this was impossible.
- (d) A declaration may not be withdrawn but may be corrected by the seller if he can show a typographical error or misspelling in the declaration, or vessel substitution as defined by the applicable Bill of Lading.

### 7. LOST OR MISSING MERCHANDISE

- (a) Should the vessel and/or the merchandise, or any portion thereof, be lost whether before or after declaration, this contract shall be cancelled for the lost portion. Seller shall produce satisfactory proof as soon as practicable after said loss is ascertained.
- (b) Should the merchandise or any portion of it be transshipped to any other vessel or vessels due to circumstances beyond seller's control, and arrive for account of the original importer, the contract shall stand good for such portion.

### 8. LANDED WEIGHTS

- (a) Actual gross weights are to govern.
- (b) Merchandise shall be weighed at seller's expense by a Certified Public Weighmaster at the time and place of delivery but not later than the last day of the buyer's free storage period.
- (c) If the merchandise was weighed within the preceding 14 days, such certificate shall be valid.

### 9. TARES

- (a) Packing - in bags or bales - sold on "net weight" basis: Original shipping tares shall govern provided the packages are uniform. These tares shall be substantiated at port of shipment by independent surveyor's certificate and are to be ascertained by taring 5% of the sound portion of each chop or invoice. If 300 or more packages are involved, 3% taring is sufficient.
- (b) Packing is in double bags - sold on "gross for net weight" basis:

Tare for outer bags shall be allowed to the buyer.

(c) Packing in cases, chest, barrels or drums: Shipper's marked tare shall govern.

(d) Buyer shall have the option to tare 5% of the sound portion of each chop (3% if 300 or more packages involved). If such Tare Certificate by Public Weighmaster proves the shipping tare to be inaccurate, the landed tares shall govern. In this case the expense of taring shall be for seller's account. The Public Weighmaster's Certificate shall state the gross weight of each package tared.

### 10. TENDERS

- (a) The date of delivery order shall be its mailing date or hand-delivery date. No delivery order shall be valid until the merchandise is in compliance with FDA Regulations and ASTA Specifications and is available to buyer.
- (b) Seller shall give buyer at least 7 days free time and insurance on dock or in warehouse. Merchandise not removed within the free time specified, remains on dock or in warehouse at buyer's risk and expense.
- (c) If merchandise is tendered on a dock where graduated pier demurrage rates apply, and buyer allows merchandise to remain beyond the 7-day period granted, seller shall grant buyer the benefit of 5 days demurrage at first period rates according to the demurrage scale applicable. Thereafter, actual demurrage rates apply.
- (d) Certificate of Analysis dated not later than the date of delivery order shall be presented with invoice.
- (e) If a pro-forma invoice is issued, it must be accompanied by a tare certificate unless the seller orders taring of the merchandise.
- (f) Missing packages shall be picked up by buyer if located within 30 days from date of original delivery order and shall be invoiced separately.

### 11. IMPORT REGULATIONS AND STANDARDS

- (a) All merchandise purchased under this contract for import into the U.S.A. shall comply at the port of entry with the rules and standards under which the FDA enforces the Food, Drug and Cosmetic Act of 1938, and amendments thereto and shall also comply with the ASTA Specifications in effect on date of this contract.
- (b) Determination that the merchandise is in compliance with the ASTA Specifications shall be certified by a laboratory approved by ASTA.
- (c) The samples for making such determination shall be drawn in accordance with the ASTA Specifications.
- (d) Should the merchandise fail to comply, seller shall notify buyer or his representative immediately in writing.
- (e) The Importer of Record shall make every reasonable effort with due diligence, including fumigation ad reconditioning, to bring the merchandise into compliance.  
All expenses so incurred including fumigation, trucking, reconditioning, sampling, analysis after reconditioning/fumigation, as well as loss in weight incident to reconditioning shall be for account of the seller; any reasonable loss in weight due to reconditioning shall be considered part of the tender.  
The loss in weight shall be determined by the difference between the net landed weight and the net weight after reconditioning.
- (f) If the merchandise does not comply and cannot be brought into compliance, the buyer shall have the option to accept the merchandise without recourse or to reject it.
- (g) If merchandise is sold subject to "compliance or no sale," expenses of storage, labor, cartage and insurance shall be borne by seller if merchandise does not comply or by buyer if it does comply.
- (h) Light Berry Standard for Black Pepper: The ASTA Certificate of Analysis shall also show the percentage of light berries. Method 14 of ASTA Analytical Methods of 1968 is to be used for the determination of Light Berries. Any excess over 2% up to 4% shall be settled by an allowance to the buyer of an equivalent percentage of the contract price.
- (i) Damaged merchandise shall be taken by buyer and allowance determined by arbitration or otherwise. Buyer shall have the option of rejecting the damaged portion, if found to be unmerchantable. Seller shall have the right to replace the rejected merchandise from the same dock within the contract period or within 10 days from date of notice to seller of such rejection.

### 12. MARKING

All merchandise must be marked in English with the country of origin and the name of the product on each package and in accordance with U.S. Customs regulations in effect on date of contract. Buyer may mark for account of seller whatever is not marked.

### 13. INSOLVENCY OF BUYER OR SELLER

If before the maturity of this contract, either party liable on the face thereof shall suspend payment, or commit an act of bankruptcy or issue a notice convening a meeting of his creditors, or become bankrupt or insolvent, or fail to meet his general trade obligations in the regular course of business, this contract shall thereupon be closed, (48 hours' notice having been previously given to him) at the price prevailing on the closing day.

### 14. FORCE MAJEURE

This contract is subject to Force Majeure.

**IMPORT C.I.F., C.&F. OR F.O.B. CONTRACT**

AMERICAN SPICE TRADE ASSOCIATION  
580 Sylvan Avenue  
P.O. Box 1267, Englewood Cliffs, N.J. 07632, U.S.A.

As amended, effective on and after August 1, 1988



Contract Number \_\_\_\_\_

City \_\_\_\_\_

Date \_\_\_\_\_

SOLD BY: \_\_\_\_\_ Seller \_\_\_\_\_

TO: \_\_\_\_\_ SUBJECT TO THE RULES AND CONDITIONS SET FORTH BELOW AND ON THE REVERSE SIDE. Buyer \_\_\_\_\_

QUANTITY, about \_\_\_\_\_

ARTICLE \_\_\_\_\_ *Sample*

QUALITY \_\_\_\_\_ AND IN ACCORDANCE WITH OFFICIAL ASTA SPECIFICATIONS EFFECTIVE JANUARY 1, 1983 AND ANY AMENDMENTS THERETO IN EFFECT ON THE DATE OF THIS CONTRACT.

PRICE \_\_\_\_\_

SHIPMENT \_\_\_\_\_ (BY VESSEL OR VESSELS OPERATED BY CONFERENCE LINES UNLESS OTHERWISE AGREED UPON BY BUYER.)

PARTIAL SHIPMENT \_\_\_\_\_ PERMITTED TRANSSHIPMENT \_\_\_\_\_ PERMITTED

TERMS OF PAYMENT \_\_\_\_\_

WEIGHTS \_\_\_\_\_

REMARKS: \_\_\_\_\_

COMMISSION TO BE PAID BY SELLER (OR BY BUYER WHEN DEDUCTED FROM INVOICE) TO THE AGENT/BROKER WHETHER CONTRACT CANCELLED OR NOT CANCELLED. COMMISSION DEDUCTED FROM SELLER'S INVOICE IN FAVOR OF THE AGENT OR BROKER SHALL BE REMITTED PROMPTLY AFTER PAYMENT OF DOCUMENTS.

ALL QUESTIONS, CONTROVERSYES AND CLAIMS, ARISING UNDER THIS CONTRACT, AND ANY CONTROVERSYES BETWEEN A PARTY HERETO AND THE BROKER OR AGENT RELATING TO THE PAYMENT OF BROKERAGE OR COMMISSION HEREUNDER, SHALL BE SUBMITTED TO AND SETTLED BY ARBITRATION UNDER THE RULES OF THE AMERICAN SPICE TRADE ASSOCIATION PRINTED BELOW AND THE RULES CONTAINED IN ARBITRATION BOOKLET #3, WHICH ARE PART OF THIS CONTRACT. ARBITRATION BOOKLET #3 IS AVAILABLE AT NO COST FROM THE AMERICAN SPICE TRADE ASSOCIATION.

**WAIVER OF PERSONAL SERVICE**

Each party to this contract hereby consents that any papers, notices or process necessary or proper for the institution or continuation of an arbitration proceeding, for the confirmation of an award, for the entry of judgement on an award made, or otherwise required to be given by law or under the rules herein set forth, including notices as to review, may be given or served upon such party (a) by ordinary, certified, or registered mail (air mail if destination is one thousand miles or more from arbitration site), telegrams, or cable addressed to such party's last known address; or (b) by personal service, within or without the State wherein the arbitration is to be held, or within or without the limits of the jurisdiction of the Court having jurisdiction in the premises (whether such party be within or without the United States of America); or (c) where a party to a controversy is not located in the City of New York, by mail or personally, as provided in (a) and (b) hereof, upon his agent or broker through whom the contract was made; provided that a reasonable time shall be allowed such party to appear and defend.

THIS CONTRACT IS GOVERNED BY THE LAWS OF THE STATE OF NEW YORK AND SHALL NOT BE ASSIGNED WITHOUT THE WRITTEN CONSENT OF BOTH SELLER AND BUYER.

**ACCEPTED:**

Broker: \_\_\_\_\_

As Selling Agent for: \_\_\_\_\_

# RULES FOR IMPORT C.I.F., C&F, OR F.O.B. CONTRACT

## 1. MODIFICATION

Any part of this contract, written or inserted on the reverse side hereof, shall modify the rules printed on this side. Any modification of this contract shall be in writing only.

## 2. DEFINITIONS

- (a) Wherever the word "DAY" is used in this contract it shall mean "Calendar Day."
- (b) "ASTA" shall mean the American Spice Trade Association, Inc.
- (c) "FDA" shall mean the U.S. Food and Drug Administration, Department of Health and Human Services or its successor agency or agencies having authority to enforce the Food, Drug & Cosmetic Act of June 25, 1938, and amendments thereto.

## 3. QUANTITY

- (a) The word "about" means that no excess or deficiency at time of shipment may be greater than 2½% of the quantity contracted.
- (b) Unless otherwise specified, a ton shall equal 1,000 kilos (2,204.62 pounds).
- (c) Fifteen (15) tons or less shall be shipped on one Bill of Lading with one mark. More than 15 tons shall be shipped in minimum lots of 15 tons per Bill of Lading and Mark.
- Merchandise covered by each Bill of Lading shall be separately and distinctively marked.
- Extra entry, sampling and analysis expenses resulting from violation of this rule shall be borne by the seller.

## 4. DUTIES

- (a) IMPORT: All duties and taxes levied in the country of importation are for buyer's account.
- (b) EXPORT: All duties and taxes levied in the country of exportation are for seller's account.

## 5. INSURANCE

- (a) Merchandise, if sold C.I.F., shall be insured by seller at 110% of the contract price. Claims to be payable in New York or in the country of destination if other than the United States, in the currency of the draft. Any expense covering war and/or strikes and/or riots and/or civil commotions risks in excess of 1/2% to be for account of buyer based on approximate rate prevailing in New York on the date of ocean or air Bill of Lading. Insurance to be with first-class underwriters whose paying agents are to be named in the policy and insuring conditions to be either:
- (i) Against all risks of physical loss or damage from any external cause (excluding risks excluded by the free from capture and seizure and strikes, riots and civil commotions warranties) irrespective of percentages, and including the forms of the following American Institute clause prevailing at the time of shipment: "Warehouse to Warehouse;" "1943 or 1953 Marine Extension;" "Both to Blame Collision;" "Cargo;" "War Risks;" and "Strikes, Riots and Civil Commotions."

### OR

- (ii) London Institute cargo clauses (all risks) or the equivalent including London Institute Strikes, Riots and Civil Commotions Clauses prevailing at the time of shipment. Both extended to include American Institute 1943 or 1953 Marine Extension Clauses, warehouse-to-warehouse, including lightering and barging, if any, beyond the confines of the port area at ports of loading and discharge and London Institute War Clauses prevailing at the time of shipment.
- (b) On merchandise sold C&F, or F.O.B., when shipped in house-to-house or house-to-pier containers, buyer shall cover All-Risk Insurance as above. On breakbulk or pier-to-pier or pier-to-house containers, buyer shall cover All Risk Insurance, however, only from the time the merchandise is received on board vessel until received in warehouse or reconditioning plant at destination. The sum insured shall not be less than 110% of the contract price. If terms of payment are cash against documents the buyer shall, upon request, furnish evidence of insurance. Any insurance premiums resulting from shipment on over-age/under-tonnage vessels will be for account of seller, unless such vessel was nominated by buyer.

## 6. SHIPMENT

- (a) The word "Afloat" shall mean that the vessel carrying the merchandise shall have left the port of shipment prior to the contract date.
- (b) "Immediate" shall mean shipment within 7 days of the contract date.
- (c) "Prompt" shall mean shipment within 14 days of contract date.
- (d) First half of a month shall be defined as the first 15 days; second half shall be defined as the balance of a month.
- (e) Each Bill of Lading shall be treated as a separate contract.
- (f) Merchandise shall be shipped on an on-board Bill of Lading and the date thereof shall be prima facie evidence of the date of shipment.
- (g) Shipment may not be made under a Bill of Lading which is endorsed "on deck at shipper's risk" of which is subject to an equivalent provision.

## 7. CONTAINER CLAUSE

Unless otherwise agreed, shipment shall be breakbulk or in house-to-pier or pier-to-pier containers. If so containerized, the cargo shall be made available to the buyer or his order, devanched without stripping charges, at the port of discharge. In all containerized shipments, terminal charges involved in making cargo available to the buyer exclusive of demurrage, loading, and charges related to Government Agency inspections, shall be for the account of the seller.

In the case of house-to-pier, or house-to-house containers, seller guarantees the correct count as per Bill(s) of Lading.

- (a) Sampling pursuant to the Import Regulations and Standards shall take place at the pier; if impossible, then the above-mentioned sampling shall take place at the time the container is being stripped at public or private warehouse.
- (b) Where buyer and seller have agreed to pier-to-house or house-to-house containers, and have agreed that entry and sampling are accomplished at other than the port of discharge, all inland freight charges incidental to reconditioning, when required under the Import Regulations and Standards, shall be shared equally by buyer and seller.
- (c) All Bills of Lading for containerized merchandise shall show the number of packages in the container.

## 8. DECLARATIONS

- (a) Declarations shall be made by cable, telegraph, telex or telephone. Telephone declarations must be confirmed in writing.
- (b) Seller shall declare the name of the carrying vessel to his representative or to the buyer within 10 days from the date of the on-board Bill of Lading. Seller's representative and/or intermediate sellers must redeclare immediately, but no later than 15 days from the date of the on-board Bill of Lading. A declaration received on or after the fifteenth day must be passed on by intermediate seller or his representative within 24 hours of receipt.
- (c) Declarations must be made prior to the arrival of vessel at destination, unless it can be shown that this was impossible.
- (d) A declaration may not be withdrawn but may be corrected by the seller if he can show a typographical error or misspelling in the declaration.

vessel substitution as defined by the applicable Bill of Lading.

## (e) Protection of merchandise from general order:

If the goods have been declared in accordance with the above, and should negotiable shipping documents not be available on arrival of vessel at destination, buyer shall take delivery by posting up required guarantees. Cost of posting guarantees shall be for the buyer's account. It is seller's responsibility to furnish buyer with Bill of Lading numbers(s), marks, port of shipment, number of packages and name of discharging vessel at final destination enabling buyer to take delivery of the goods.

## 9. LOSS OF VESSEL

(a) Payment for negotiable shipping documents shall be made regardless of whether the vessel is lost before or after declaration.

(b) If the terms of payment are "Cash on Arrival" or "payment after compliance with Import Regulations and Standards," buyer shall pay against proper set of shipping documents on the originally scheduled arrival date of the vessel.

(c) Weights on shipper's invoice supported by the Bill of Lading or a Weight Certificate shall govern.

## 10. LANDED WEIGHTS

(a) Actual gross weights are to govern.

(b) Merchandise shall be weighed at seller's expense by a Certified Public Weighmaster within 14 days after determination of compliance or non-compliance with FDA/ASTA Specifications.

(c) Slack and/or Missing Packages shall be averaged on the basis of the sound portion.

## 11. ACCOUNTS

(a) Accounts shall be rendered and balances paid with due dispatch but not later than 60 days from the date of compliance or the expiration of free pier storage time whichever is applicable.

(b) If buyer fails to render final accounting and pay balances due to seller within the 60-day period referred to in (a) above, settlement of the weights shall be made on the following basis:

No deduction for loss in weight or weighing expenses shall be allowed to the buyer.

(c) On merchandise sold on landed weights, full credit for excess weight shall be given, in any event, to seller if a Public Weigher has weighed the goods upon arrival.

## 12. TARES

(a) Packing - in bags or bales - sold on "net weight" basis:

Original shipping tares shall govern provided the packages are uniform. These tares shall be substantiated at port of shipment by independent surveyor's certificate and are to be ascertained by taring 5% of the sound portion of each chop or invoice. If 300 or more packages are involved, 3% taring is sufficient.

(b) Packing in double bags - sold on "gross for net weight" basis: Tare for outer bags shall be allowed to the buyer.

(c) Packing in cases, chests, barrels or drums: Shipper's marked tare shall govern.

(d) Buyer shall have the option to tare 5% of the sound portion of each chop (3% if 300 or more packages involved). If such Tare Certificate by Public Weighmaster proves the shipping tare to be inaccurate, the landed tares shall govern. In this case the expense of taring shall be for seller's account. The Public Weighmaster's Certificate shall state the gross weight of each package tared.

## 13. IMPORT REGULATIONS AND STANDARDS

(a) All merchandise purchased under this contract for import into the USA shall comply at the port of entry with the rules and standards under which the FDA enforces the Food, Drug and Cosmetic Act of 1938 and amendments thereto and shall also comply with the ASTA Specifications in effect on date of this contract.

(b) Determination that the merchandise is in compliance with the ASTA Specifications shall be certified by a laboratory approved by ASTA.

(c) The samples for making such determination shall be drawn in accordance with the ASTA Specifications.

(d) The Certificate of Analysis is to be issued within 10 days after expiration of free pier storage time, unless it can be shown that this was impossible. The cost of sampling and analysis shall be for buyer's account.

(e) Should merchandise fail to comply, written notice shall be given to the seller or his representative immediately.

(f) The Importer of Record shall make every reasonable effort with due diligence, including fumigation and reconditioning, to bring the merchandise into compliance.

All expenses so incurred including fumigation, trucking, reconditioning, sampling, analysis after reconditioning/fumigation, as well as loss in weight incident to reconditioning shall be for account of the seller; any reasonable loss in weight due to reconditioning shall be considered part of the tender.

The loss in weight shall be determined by the difference between the net landed weight and the net weight after reconditioning.

(g) If the merchandise does not comply and cannot be brought into compliance, the buyer shall have the option to accept the merchandise without recourse, or to reject it subject to a claim for all expenses incurred by the buyer.

(h) If merchandise is sold subject to "compliance or no sale," expenses of storage, labor, cartage and insurance shall be borne by seller if merchandise does not comply or by buyer if it does comply.

(i) Light Berry Standard for Black Pepper:

The ASTA Certificate of Analysis shall also show the percentage of light berries. Method 14 of ASTA Analytical Methods of 1968 is to be used for the determination of Light Berries. Any excess over 2% up to 4% shall be settled by an allowance to the buyer of an equivalent percentage of the contract price, and a copy of the certificate showing excess light berries shall be mailed to seller or his representative immediately.

## 14. MARKING

All merchandise must be marked in English with the country of origin and the name of the product on each package and in accordance with U.S. Customs regulations in effect on date of contract. Buyer may mark for account of seller whatever is not marked.

## 15. INSOLVENCY OF BUYER OR SELLER

If before the maturity of this contract, either party liable on the face thereof shall suspend payment, or commit an act of bankruptcy or issue a notice convening a meeting of his creditors, or become bankrupt or insolvent, or fail to meet his general trade obligations in the regular course of business, this contract shall thereupon be closed, (48 hours' notice having been previously given to him) at the price prevailing on the closing day.

## 16. CONSULAR FEES

All costs of consular fees, charges, and visas as well as Consular Invoices and Certificates of Origin (if required) are for buyer's account.

## 17. FORCE MAJEURE

This contract is subject to Force Majeure.



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